HUME CITY COUNCIL

Office Use Only

Application No.: Date Lodged: / /

Application for
Planning Permit

Planning Enquiries
Phone: 03 9205 2200
Web: http://www.hume.vic.gov.au

If you need help to complete this form, read How to complete the Application for Planning Permit form.

⚠ Any material submitted with this application, including plans and personal information, will be made available for public viewing, including electronically, and copies may be made for interested parties for the purpose of enabling consideration and review as part of a planning process under the *Planning and Environment Act 1987*. If you have any concerns, please contact Council's planning department.

⚠ **Questions marked with an asterisk (*) are mandatory and must be completed.**

⚠ **If the space provided on the form is insufficient, attach a separate sheet.**

The Land

(1) Address of the land. Complete the Street Address and one of the Formal Land Descriptions.

Street Address *

Unit No.:	St. No.: 14	St. Name: The Ridge

Suburb/Locality: Oakland Junction Postcode: 3063

Formal Land Description *
Complete either A or B.

⚠ This information can be found on the certificate of title.

A Lot No.: 51 ◯ Lodged Plan ◯ Title Plan ◉ Plan of Subdivision No.: 336562G

OR

B Crown Allotment No.: Section No.:

Parish/Township Name:

If this application relates to more than one address, please click this button and enter relevant details.

The Proposal

⚠ You must give full details of your proposal and attach the information required to assess the application. Insufficient or unclear information will delay your application.

(2) **For what use, development or other matter do you require a permit? ***

If you need help about the proposal, read:

Select the focus of this application and describe below: Other

Single Storey Dwelling, Associated Garage & Pool

Provide additional information on the proposal, including: plans and elevations; any information required by the planning scheme, requested by Council or outlined in a Council planning permit checklist; and if required, a description of the likely effect of the proposal.

(3) **Estimated cost of development for which the permit is required ***

Cost $ 900000 ⚠ You may be required to verify this estimate. Insert `0' if no development is proposed.

If the application is for land within **metropolitan Melbourne** (as defined in section 3 of the *Planning and Environment Act 1987*) and the estimated cost of the development exceeds $1 million (adjusted annually by CPI) the Metropolitan Planning Levy **must** be paid to the State Revenue Office and a current levy certificate **must** be submitted with the application.
Visit www.sro.vic.gov.au for information.

Existing Conditions

4 **Describe how the land is used and developed now** *

eg. vacant, three dwellings, medical centre with two practitioners, licensed restaurant with 80 seats, grazing.

Vacant Land

Provide a plan of the existing conditions. Photos are also helpful.

Title Information

5 **Encumbrances on title** *

If you need help about the title, read: How to complete the Application for Planning Permit form

Does the proposal breach, in any way, an encumbrance on title such as a restrictrive covenant, section 173 agreement or other obligation such as an easement or building envelope?

- ◯ Yes. (If 'yes' contact Council for advice on how to proceed before continuing with this application.)
- ◉ No
- ◯ Not applicable (no such encumbrance applies).

Provide a full, current copy of the title for each individual parcel of land forming the subject site. (The title includes: the covering 'register search statement', the title diagram and the associated title documents, known as 'instruments', eg. restrictive covenants.)

Applicant and Owner Details

6 Provide details of the applicant and the owner of the land.

Applicant *

The person who wants the permit.

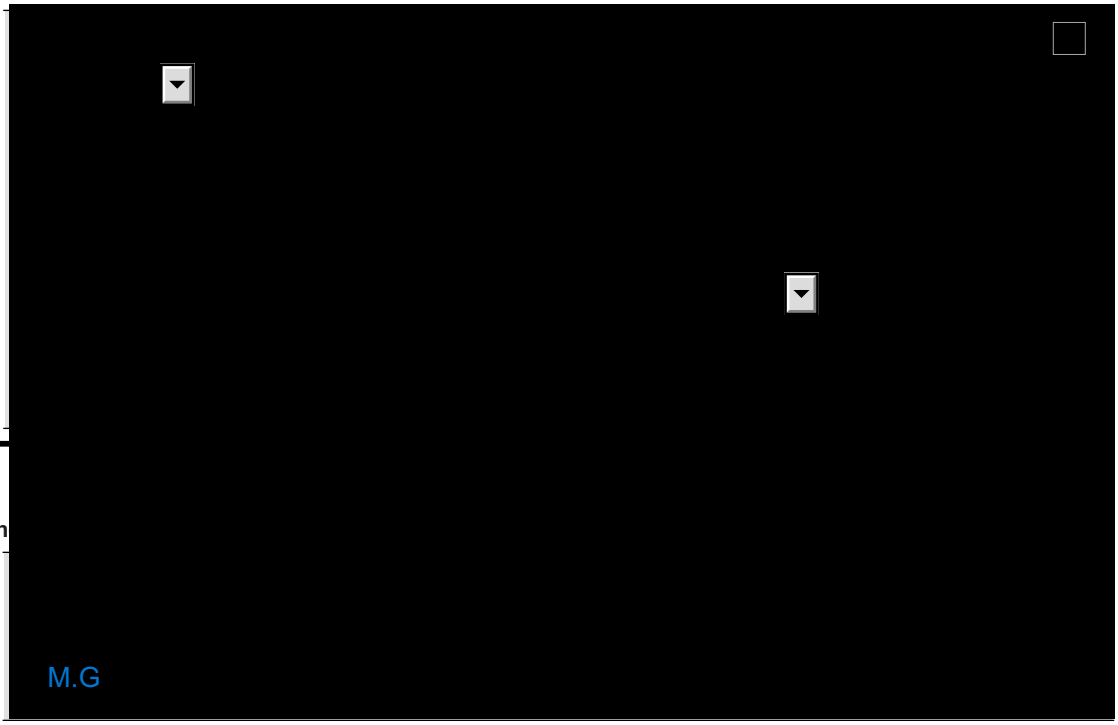
Where the preferred contact person for the application is different from the applicant, provide the details of that person.

Please provide at least one contact phone number *

Owner *

The person or organisation who owns the land

Where the owner is different from the applicant, provide the details of that person or organisation.



M.G

Declaration

7 **This form must be signed by th**

⚠ Remember it is against the law to provide false or misleading information, which could result in a heavy fine and cancellation of the permit.

Need help with the Application?

If you need help to complete this form, read How to complete the Application for Planning Permit form
General information about the planning process is available at www.delwp.vic.gov.au/planning

Contact Council's planning department to discuss the specific requirements for this application and obtain a planning permit checklist. Insufficient or unclear information may delay your application.

8 Has there been a pre-application meeting with a Council planning officer?

◉ No ○ Yes If 'yes', with whom?:

Date: day / month / year

Checklist

9 Have you:

☑ Filled in the form completely?

☑ Paid or included the application fee? ⚠ Most applications require a fee to be paid. Contact Council to determine the appropriate fee.

Provided all necessary supporting information and documents?

- ☑ A full, current copy of title information for each individual parcel of land forming the subject site
- ☑ A plan of existing conditions.
- ☑ Plans showing the layout and details of the proposal
- ☑ Any information required by the planning scheme, requested by council or outlined in a council planning permit checklist.
- ☑ If required, a description of the likely effect of the proposal (eg traffic, noise, environmental impacts).
- ☑ If applicable, a current Metropolitan Planning Levy certificate (a levy certificate expires 90 days after the day on which it is issued by the State Revenue Office and then cannot be used). Failure to comply means the application is void.

☑ Completed the relevant Council planning permit checklist?

☑ Signed the declaration (section 7)?

Lodgement

Lodge the completed and signed form, the fee payment and all documents with:

Hume City Council
PO Box 119 Dallas VIC 3047
Pascoe Vale Road Broadmeadows VIC 3047

Contact information:

Telephone: 61 03 9205 2200
Email: email@hume.vic.gov.au
DX: 94718
Translation: 03 9205 2200 for connection to Hume Link's multilingual telephone information service

Deliver application in person, by fax, or by post:

Make sure you deliver any required supporting information and necessary payment when you deliver this form to the above mentioned address. This is usually your local council but can sometimes be the Minister for Planning or another body.

Save Form:

You can save this application form to your computer to complete or review later or email it to others to complete relevant sections.

REGISTER SEARCH STATEMENT (Title Search) Transfer of Land Act 1958

VOLUME 10611 FOLIO 929

Security no : 124117213931G
Produced 06/08/2024 01:48 PM

LAND DESCRIPTION

Lot 51 on Plan of Subdivision 336562G.
PARENT TITLE Volume 10493 Folio 396
Created by instrument PS336562G Stage 3 31/10/2001

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
[redacted]

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AX839779D 22/03/2024
AUSTRALIA AND NEW ZEALAND BANKING GROUP LTD

COVENANT PS336562G 15/05/1996

Any encumbrances created by Section 98 Transfer of Land Act 1958 or Section 24 Subdivision Act 1988 and any other encumbrances shown or entered on the plan set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE PS336562G FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

----------END OF REGISTER SEARCH STATEMENT----------

Additional information: (not part of the Register Search Statement)

Street Address: 14 THE RIDGE OAKLANDS JUNCTION VIC 3063

ADMINISTRATIVE NOTICES

NIL

eCT Control 16165A AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED
Effective from 22/03/2024

OWNERS CORPORATIONS

The land in this folio is affected by
OWNERS CORPORATION 1 PLAN NO. PS336562G

DOCUMENT END

Imaged Document Cover Sheet

The document following this cover sheet is an imaged document supplied by LANDATA®, Secure Electronic Registries Victoria.

Document Type	**Plan**
Document Identification	**PS336562G**
Number of Pages (excluding this cover sheet)	**12**
Document Assembled	**06/08/2024 13:48**

PLAN OF SUBDIVISION

Stage No.	LTO use only	Plan Number
	EDITION 8	PS 336562G

Location of Land

Parish: BOLLINDA

Township:

Section: 14

Crown Allotment: C

Crown Portion:

LTO Base Record:

Title Reference: VOL 8712 FOL 697

Last Plan Reference: BP 591

Postal Address: KONAGADERRA ROAD
(at time of subdivision) OAKLANDS JUNCTION 3063

AMG Co-ordinates (of approx. centre of land in plan) E 309040 N 5843140 Zone: 55

Council Certification and Endorsement

Council Name: HUME CITY COUNCIL Ref: 28-3-2393

~~1. This plan is certified under section 6 of the Subdivision Act 1988.~~

2. This plan is certified under section 11(7) of the Subdivision Act 1988.
Date of original certification under section 6 22 / 12 / 94

~~3. This is a statement of compliance issued under section 21 of the Subdivision Act 1988.~~

OPEN SPACE

(i) A requirement for public open space under section 18 of the Subdivision Act 1988 ~~has~~/has not been made.

~~(ii) The requirement has been satisfied.~~

~~(iii) The requirement is to be satisfied in Stage.....~~

Council Delegate

~~Council Seal~~

Date / /

Re-certified under section 11(7) of the Subdivision Act 1988

Council Delegate

~~Council Seal~~

Date 4 / 4 / 96

APPLIES TO MASTER PLAN (STAGE 1) ONLY

Vesting of Roads and/or Reserves

Identifier	Council/Body/Person
NIL	NIL

Notations

Staging This is/~~is not~~ a staged subdivision
Planning ~~Permit No.~~ Scheme Amendment No. L72

Depth Limitation
15·24 METERS BELOW THE SURFACE. -

Common Property No.2 consists of private roads called Deep Creek Road, Red Gum Road and Peregrine Road & The Ridge.

OTHER PURPOSES OF PLAN
TO REMOVE THAT PART OF THE EASEMENT E-1 SHOWN ON STAGE 1 AS IS NOT INCLUDED HEREIN. (SUCH PART IS REPLACED BY EASEMENTS E-5 AND THE PRIVATE ROAD THE RIDGE).
GROUNDS FOR REMOVAL PLANNING PERMIT No. P5564.

Survey This plan is/~~is not~~ based on survey
This survey has been connected to permanent marks no(s) 3
In Proclaimed Survey Area No. -

Easement Information

Legend: E – Encumbering Easement, Condition in Crown Grant in the Nature of an Easement or Other Encumbrance; A – Appurtenant Easement; R – Encumbering Easement (Road)

EASEMENTS & RIGHTS BY SECTION 12(2) OF THE SUBDIVISION ACT 1988 APPLY EXCEPT FOR RIGHTS OF WAY OVER LOTS 1 TO 49 (BOTH INCLUSIVE) AND S3 ON THIS PLAN

Subject Land	Purpose	Width (metres)	Origin	Land Benefited/In Favour Of
SEE SHEET 2				

LTO use only

Statement of Compliance/ Exemption Statement

Received ☑

Date 8 / 5 / 96

LTO use only

THIS IS AN L.T.O. COMPILED PLAN

CHECKED 8 / 2 / 00

GJ Nemo
Assistant Registrar of Titles

Sheet 1 of 11 sheets

OAKLANDS PARK STAGE 1 29 LOTS

WRCM group
Engineers
Surveyors
Planners
71 Palmerston Crescent South Melbourne Victoria 3205 Australia
PO Box 345 South Melbourne 3205 DX30524 Emerald Hill
Facsimile 03) 690 9461 Telephone 03) 699 1600

LICENSED SURVEYOR (PRINT) GEOFFREY JAMES TURNER

SIGNATURE ..... DATE / /

REF 5399 014 8/3/96 VERSION D

DWG 539951D

..... DATE / /

COUNCIL DELEGATE SIGNATURE

Original sheet size A3

PS336562G

Easement Information

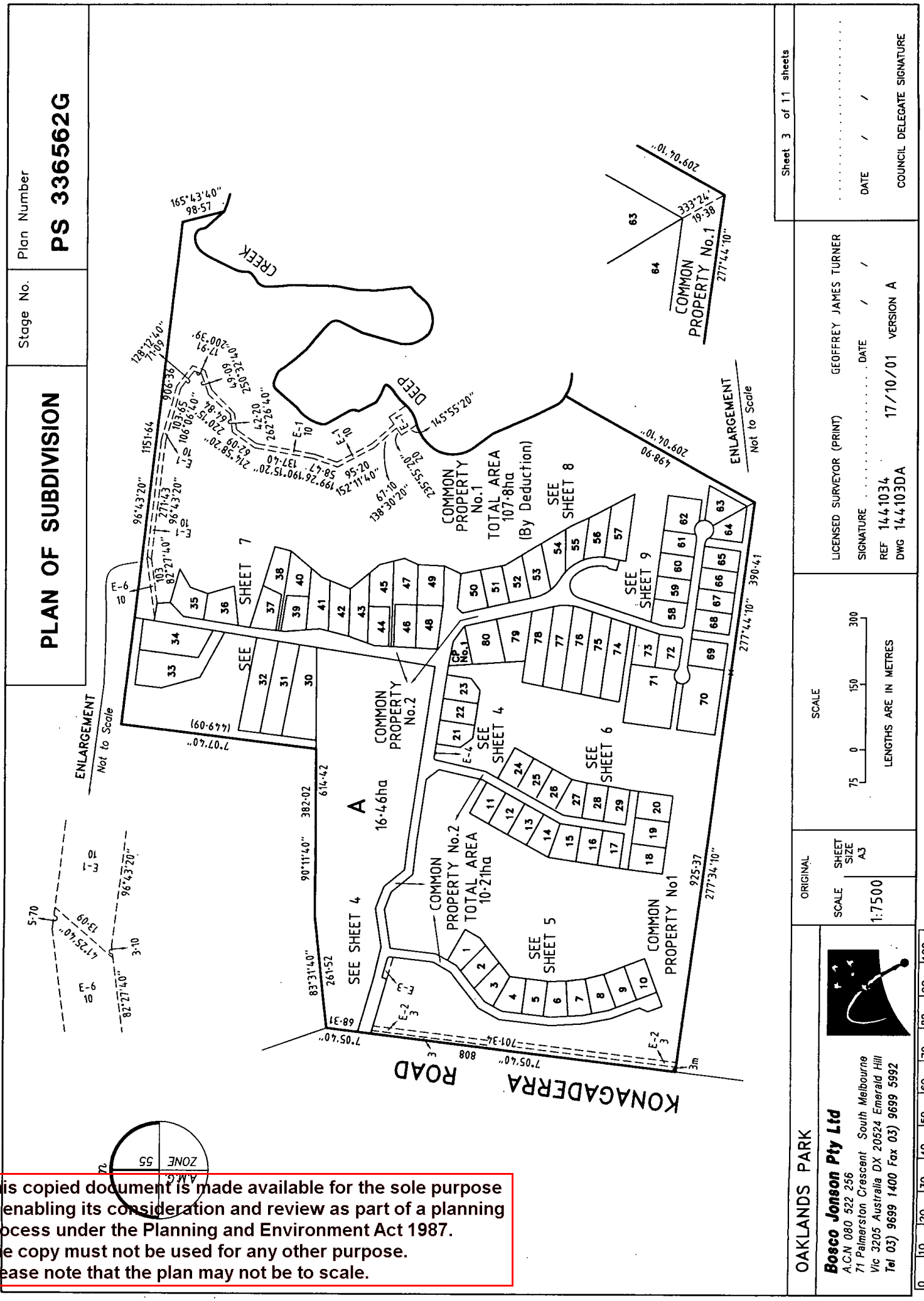
E - Encumbering Easement R - Encumbering Easement (Road) A - Appurtenant Easement

Easement Reference	Purpose / Authority	Width (metres)	Origin	Land benefitted / In favour of
E-1	WAY	10m	THIS PLAN	LOTS 1 to 80
E-2	TELEPHONE PURPOSES	3m	THIS PLAN	LOTS ON THIS PLAN
E-3	POWERLINE	SEE DIAG	THIS PLAN	SOLARIS POWER
E-3	TELEPHONE PURPOSES	SEE DIAG	THIS PLAN	LOTS ON THIS PLAN
E-4	POWERLINE	SEE DIAG	THIS PLAN	SOLARIS POWER
E-5 & E-7	POWERLINE	SEE DIAG	THIS PLAN	AUSTRALIAN GAS LIGHT CO LTD
E-5	TELEPHONE PURPOSES	SEE DIAG	THIS PLAN	LOTS ON THIS PLAN
E-6	WAY	10m	THIS PLAN	LOTS ON THIS PLAN
E-7	TELEPHONE PURPOSES	SEE DIAG	THIS PLAN	LOTS 50-80 (BL)

PLAN OF SUBDIVISION

Stage No.

Plan Number **PS 336562G**



Sheet 3 of 11 sheets

LICENSED SURVEYOR (PRINT) GEOFFREY JAMES TURNER

SIGNATURE ..... DATE / /

REF 144034 17/10/01 VERSION A

DWG 144103DA

COUNCIL DELEGATE SIGNATURE .....

DATE / /

SCALE 75 0 150 300

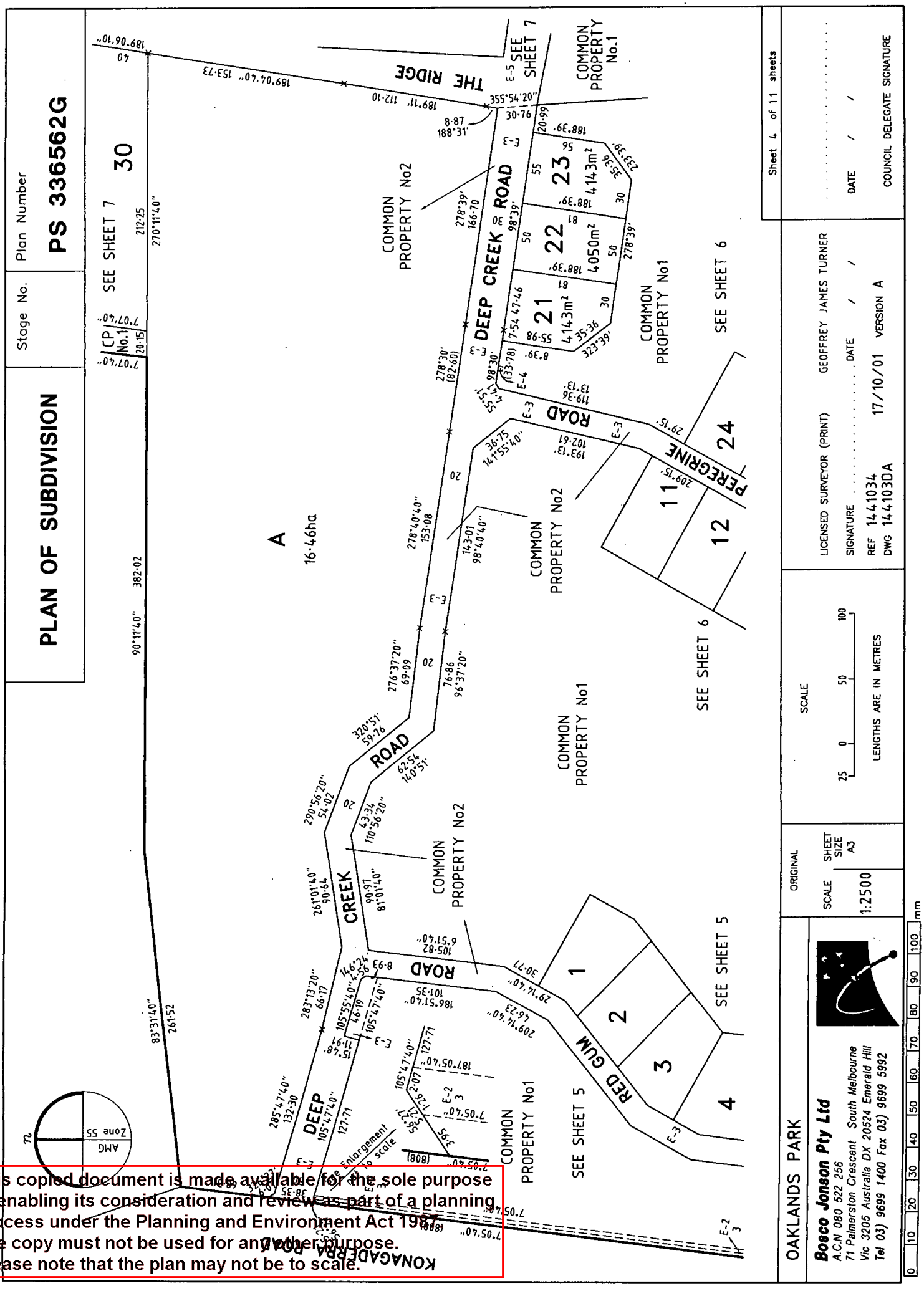
LENGTHS ARE IN METRES

ORIGINAL SHEET SIZE A3

SCALE 1:7500

Bosco Jonson Pty Ltd
A.C.N 080 522 256
71 Palmerston Crescent South Melbourne
Vic 3205 Australia DX 20524 Emerald Hill
Tel 03) 9699 1400 Fax 03) 9699 5992

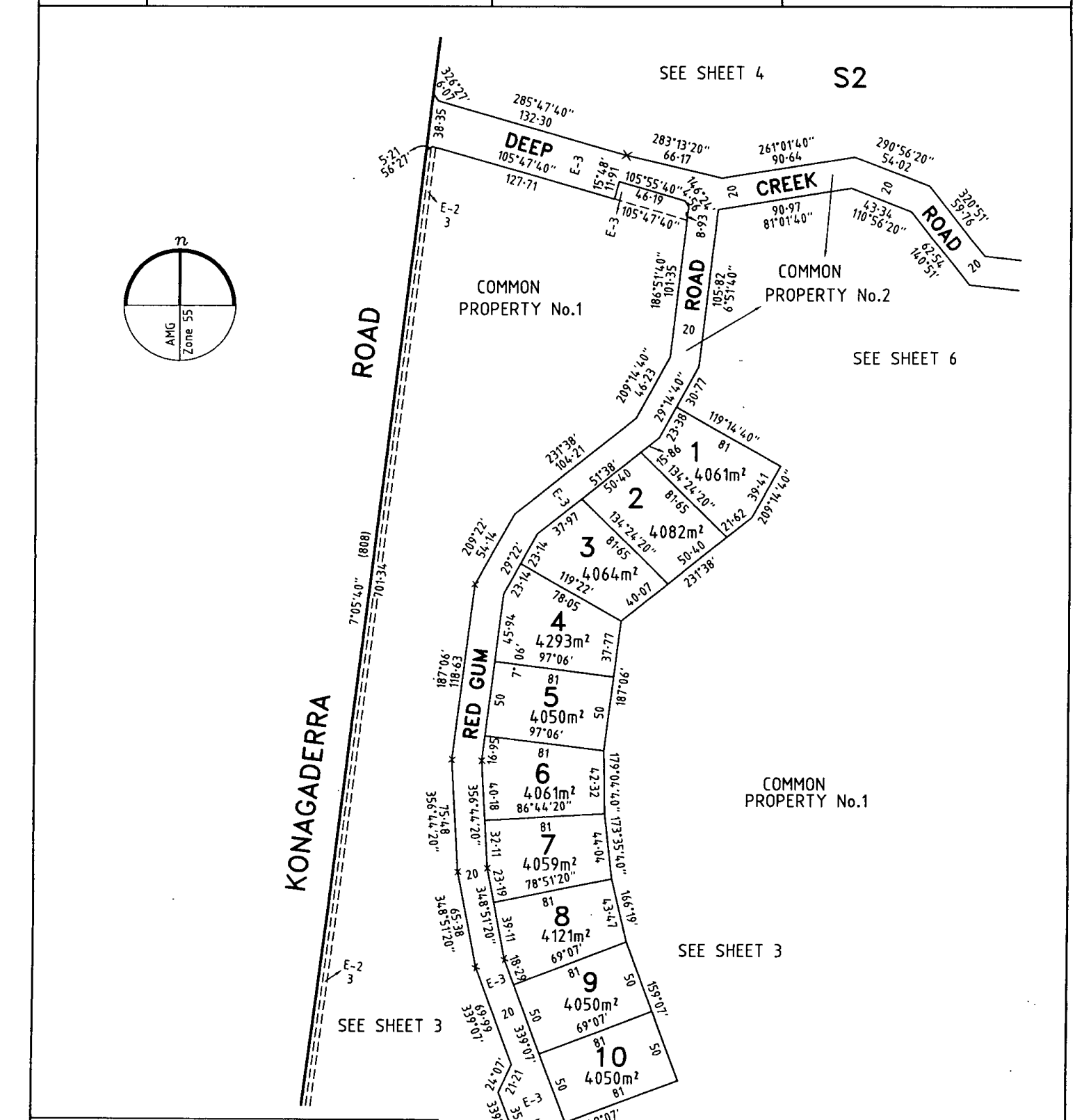
0 10 20 30 40 50 60 70 80 90 100 mm



PLAN OF SUBDIVISION

Stage No.

Plan Number
PS 336562G



OAKLANDS PARK

Bosco Jonson Pty Ltd
A.C.N 080 522 256
71 Palmerston Crescent South Melbourne
Vic 3205 Australia DX 20524 Emerald Hill
Tel 03) 9699 1400 Fax 03) 9699 5932

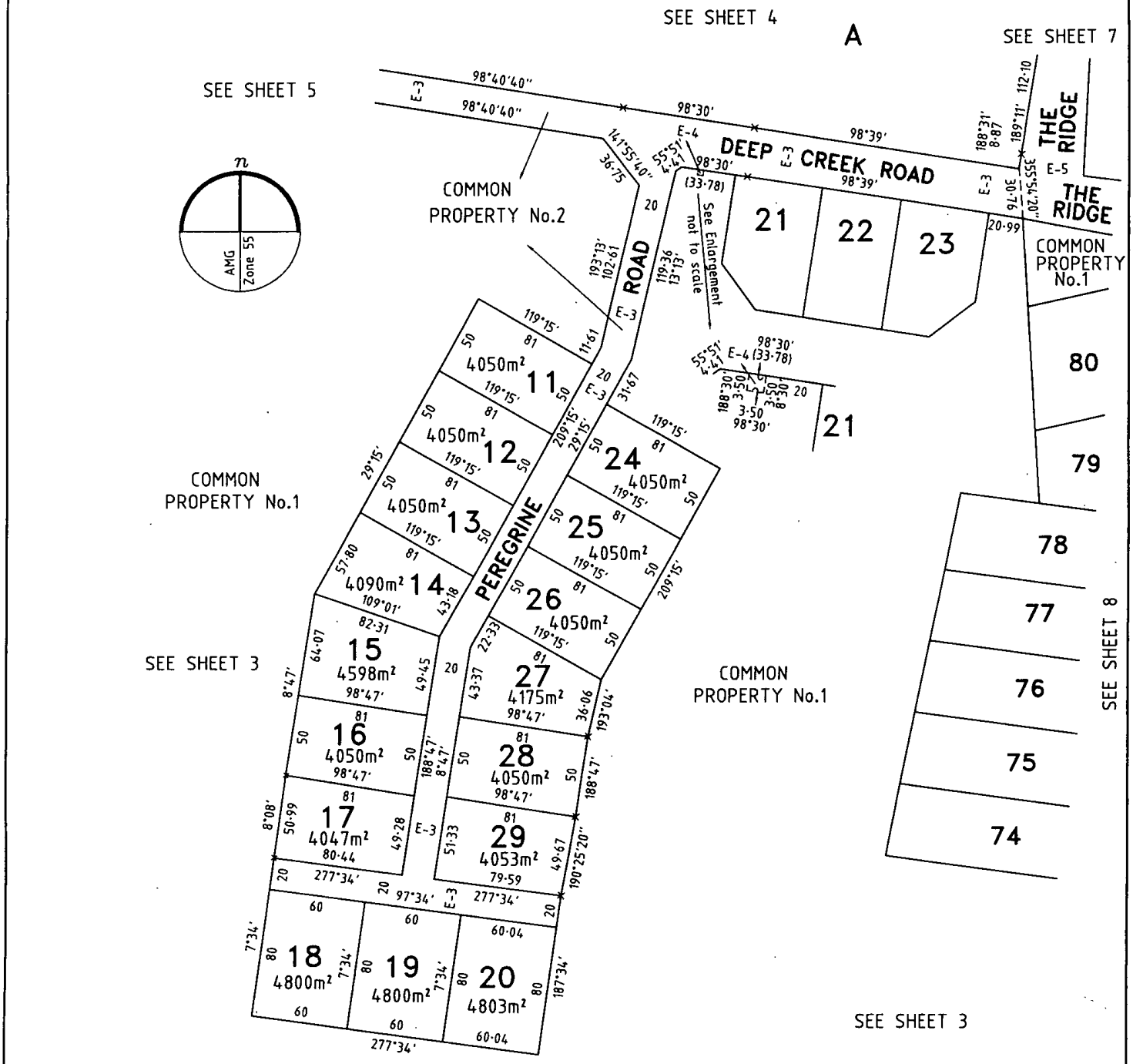
ORIGINAL SCALE
SCALE 1:2500
SHEET SIZE A3
LENGTHS ARE IN METRES

LICENSED SURVEYOR (PRINT) GEOFFREY JAMES TURNER
SIGNATURE . . . . . DATE / /
REF 1441034
DWG 144103DA
17/10/01
VERSION A

Sheet 5 of 11 sheets
. . . . . .
DATE / /
COUNCIL DELEGATE SIGNATURE
Original sheet size A3

0 10 20 30 40 50 60 70 80 90 100 mm

	PLAN OF SUBDIVISION	Stage No.	Plan Number PS 336562G



OAKLANDS PARK

Bosco Jonson Pty Ltd
A.C.N 080 522 256
71 Palmerston Crescent South Melbourne
Vic 3205 Australia DX 20524 Emerald Hill
Tel 03) 9699 1400 Fax 03) 9699 5992

ORIGINAL SCALE

SCALE 1:250 | SHEET SIZE A3 | LENGTHS ARE IN METRES

LICENSED SURVEYOR (PRINT) GEOFFREY JAMES TURNER

SIGNATURE . . . . . DATE / /

REF 1441034 | DWG 144103DA | 17/10/01 | VERSION A

Sheet 6 of 11 sheets

. . . . . DATE / /

COUNCIL DELEGATE SIGNATURE

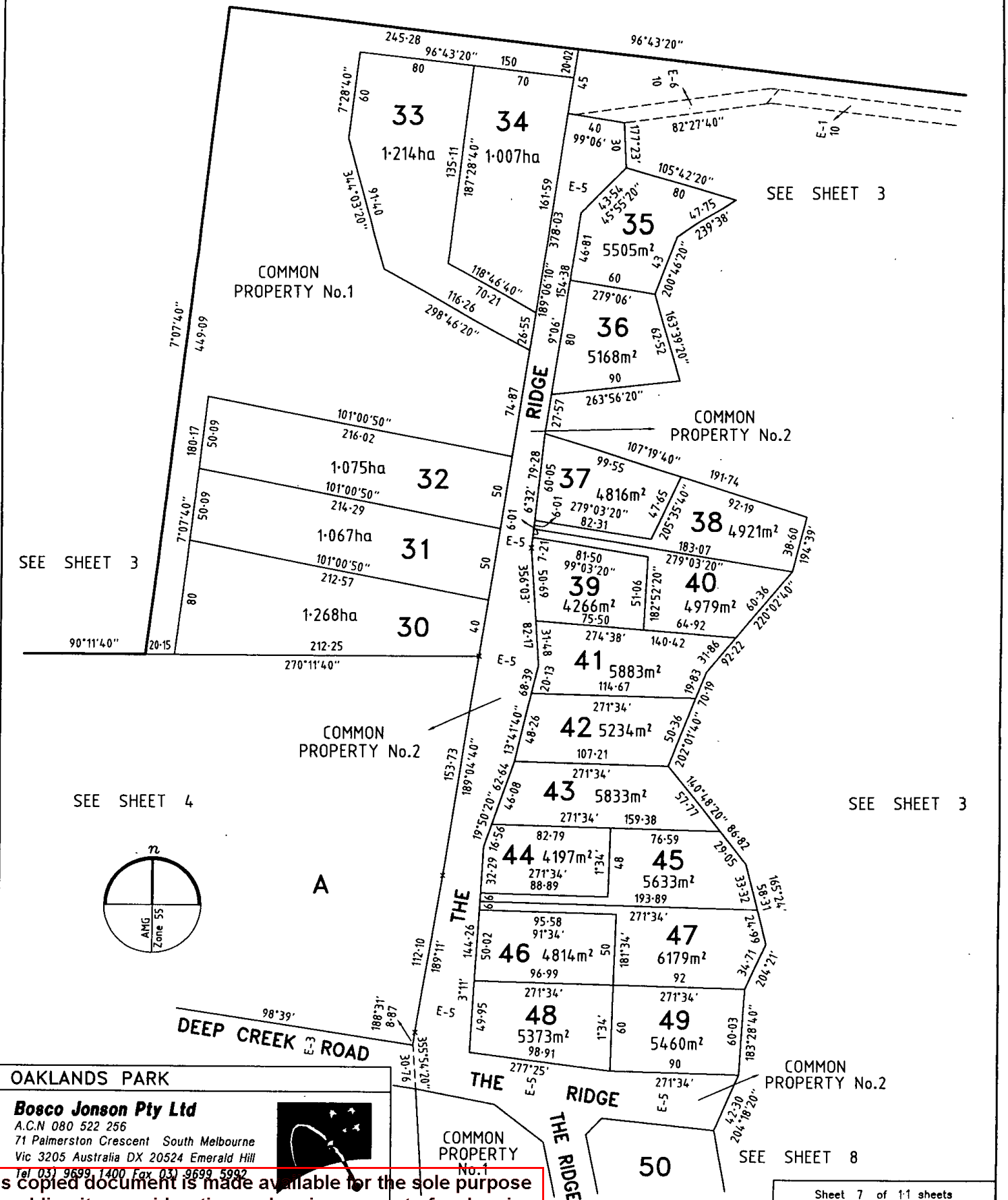
Original sheet size A3

0 10 20 30 40 50 60 70 80 90 100 mm

PLAN OF SUBDIVISION

Stage No.

Plan Number **PS 336562G**



OAKLANDS PARK

Bosco Jonson Pty Ltd
A.C.N 080 522 256
71 Palmerston Crescent South Melbourne
Vic 3205 Australia DX 20524 Emerald Hill
Tel 03) 9699 1400 Fax 03) 9699 5992

ORIGINAL SHEET SIZE A3

SCALE 1:2500

LENGTHS ARE IN METRES

0 10 20 30 40 50 60 70 80 90 100 mm

LICENSED SURVEYOR (PRINT) GEOFFREY JAMES TURNER

SIGNATURE . . . . . DATE / /

REF 1441034
DWG 144103DA

17/10/01 VERSION A

Sheet 7 of 11 sheets

. . . . . .

DATE / /

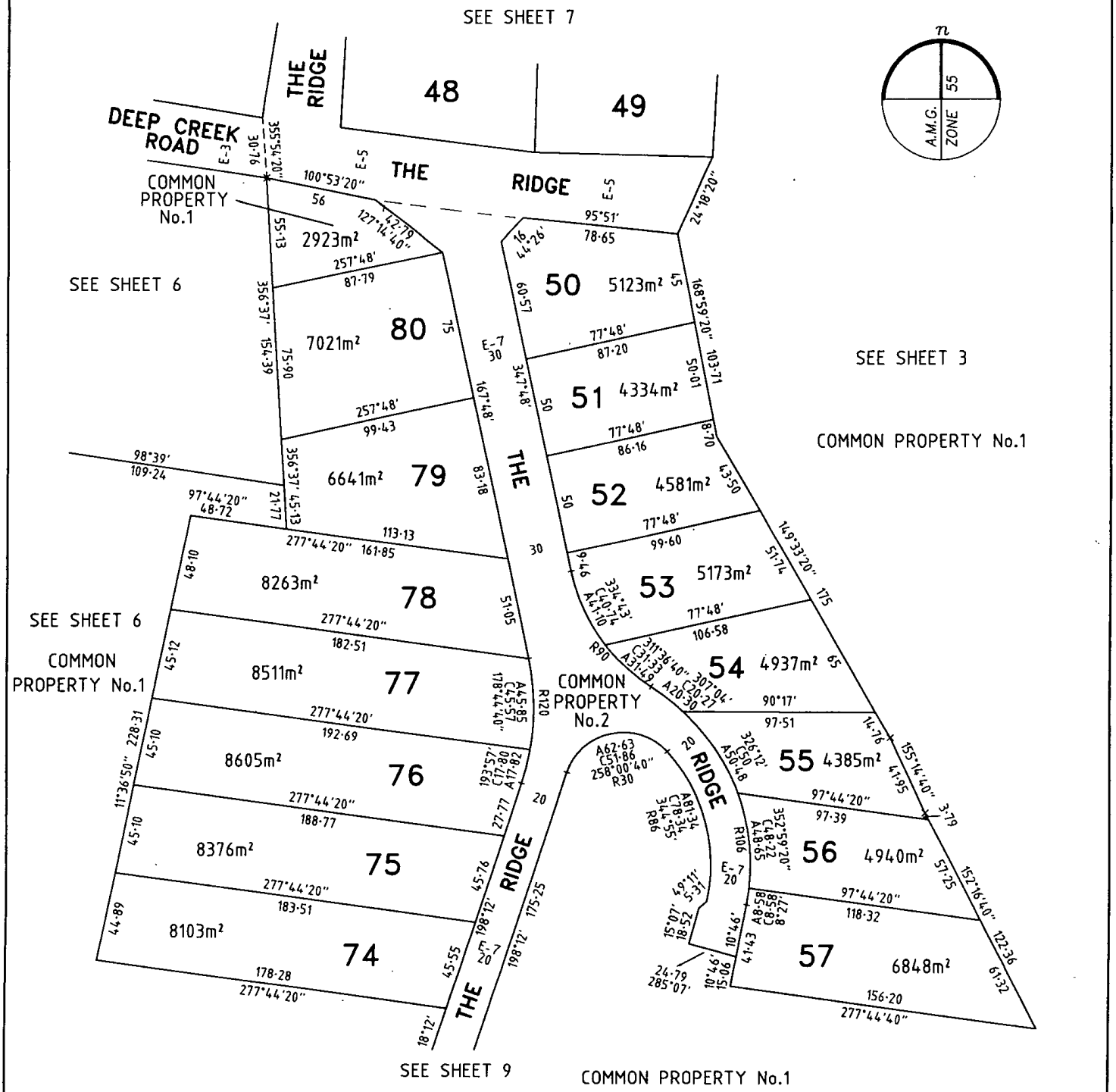
COUNCIL DELEGATE SIGNATURE

Original sheet size A3

PLAN OF SUBDIVISION

Stage No.

Plan Number
PS 336562G



OAKLANDS PARK

Bosco Jonson Pty Ltd
A.C.N 080 522 256
71 Palmerston Crescent South Melbourne
Vic 3205 Australia DX 20524 Emerald Hill
Tel 03) 9699 1400 Fax 03) 9699 5992

ORIGINAL SHEET SIZE A3

SCALE 1:1000

LENGTHS ARE IN METRES

0 10 20 30 40 50 60 70 80 90 100 mm

LICENSED SURVEYOR (PRINT) GEOFFREY JAMES TURNER

SIGNATURE . . . . . DATE / /

REF 1441034

DWG 144103DA

17/10/01 VERSION A

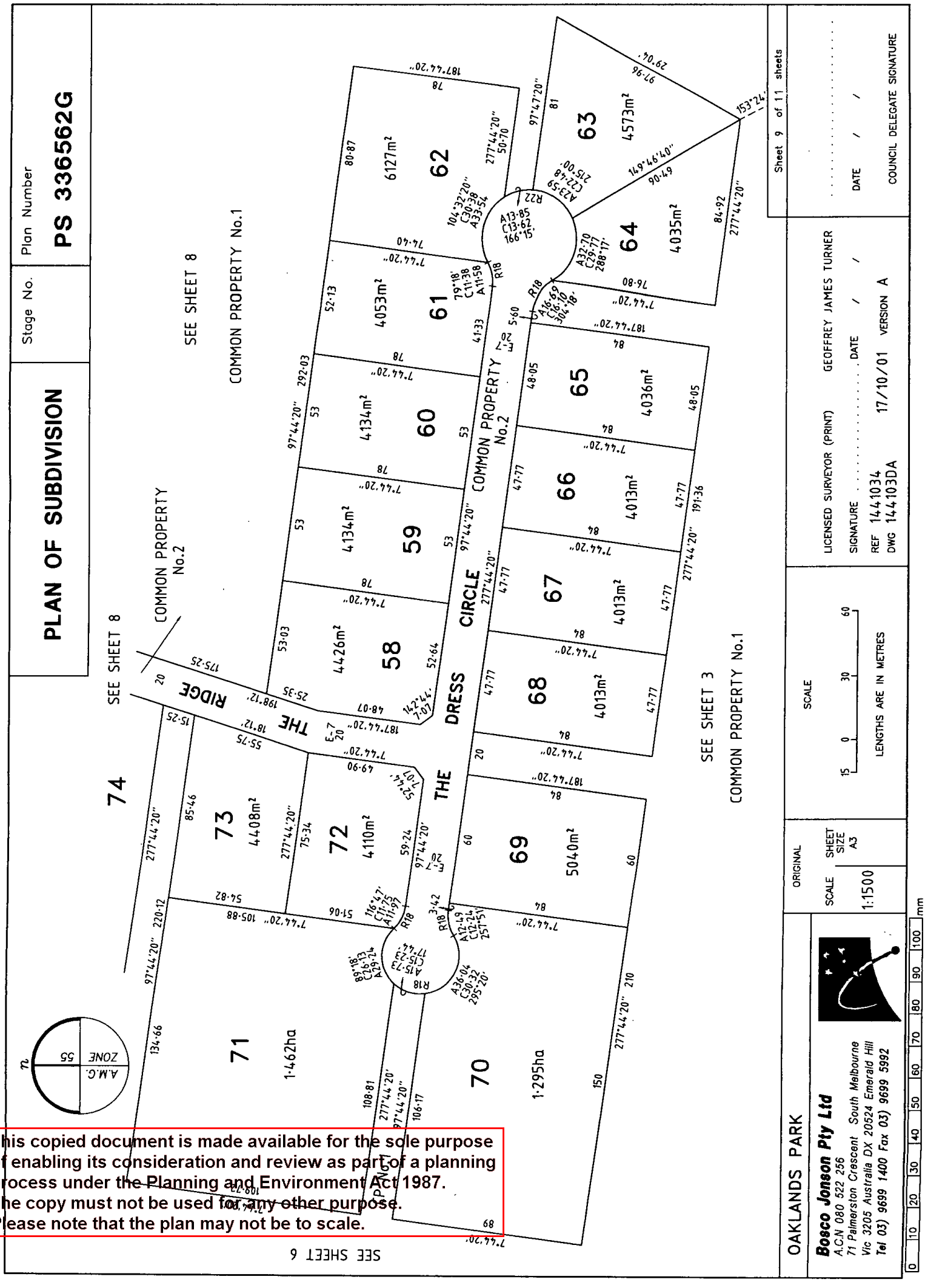
Sheet 8 of 11 sheets

. . . . . .

DATE / /

COUNCIL DELEGATE SIGNATURE

Original sheet size A3



FOR CURRENT BODY CORPORATE DETAILS SEE BODY CORPORATE SEARCH REPORT

	PLAN OF SUBDIVISION	Stage No.	Plan Number PS 336562G

SUBDIVISION (PROCEDURES) REGULATIONS 1989

OTHER PURPOSE OF PLAN

Creation of Restriction

Reg 17 Subdivision (Procedure) Regulations 1989

Subdivision Act 1988

Land to Benefit : Each and every lot on this Plan of Subdivision

Land to be Burdened : Each and every lot on this Plan of Subdivision

Description of Restriction : The registered proprietor or proprietors for the time being of any lot on this Plan of Subdivision shall not:

1. *Erect or cause to be erected more than one single dwelling house on each lot having a floor area of less than 180 square metres, the ground floor of which shall be no more than one metre above the average natural ground level of the lot except with the prior written consent of the Oaklands Park Design Panel or its nominee.*
2. *Erect or cause to be erected any single storey dwelling with a maximum height of the ridge line of the roof exceeding 7.5 metres or erect or cause to be erected a double storey dwelling house unless the floor area of the second storey is not more than one third of the total internal floor area of the dwelling and the maximum height of the ridge line of the roof does not exceed 10 metres except with the prior written consent of the Oaklands Park Design Panel or its nominee.*
3. *Erect or cause to be erected any building the external surface (other than windows) of which is constructed of any material other than brick, brick veneer, natural stone, cedar, baltic pine or other similar durable timber or rendered finish nor cause the external surfaces of the building to be treated other than with a protective clear varnish or paint of a colour consistent with the rural environment such as bronze, olive or muted shades of brown or green except with the prior written consent of the Oaklands Park Design Panel or its nominee.*
4. *Erect or cause to be erected a roof on any building unless such roof is constructed of self–coloured (eg. Colorbond) corrugated iron, slate or smooth shingle–type tiles and is of a colour consistent with the rural environment such as bronze, olive or muted shades of brown or green except with the prior written consent of the Oaklands Park Design Panel or its nominee.*
5. *Erect or cause to be erected any dwelling house unless such dwelling house has a rain water tank storage facility of not less than 70,000 litres ("the tank") except with the prior written consent of the Oaklands Park Design Panel or its nominee and unless the tank is finished in a smooth or rendered finish and is painted in the same colour as the dwelling or is screened to the prior written consent of the Oaklands Park Design Panel or its nominee.*
6. *Erect or cause to be erected any fencing other than post and rail, post and plain wire or brush except with the prior written consent of the Oaklands Park Design Panel or its nominee.*
7. *Permit the Common Property to be managed other than in accordance with the Code of Practice and Management Plan referred to in Clause 115–8B.2 of the Bulla Planning Scheme.*
8. *Erect or caused to be erected on a lot any building or outbuilding other than on the building envelope prescribed by the Hume City Council.*

OAKLANDS PARK

Bosco Jonson Pty Ltd
A.C.N 080 522 256
71 Palmerston Crescent South Melbourne
Vic 3205 Australia DX 20524 Emerald Hill
Tel 03) 9699 1400 Fax 03) 9699 5992

SCALE	SHEET SIZE	SURVEY
ORIGINAL 0	A3	STAGE

LENGTHS ARE IN METRES

0 10 20 30 40 50 60 70 80 90 100 mm

LICENSED SURVEYOR (PRINT) GEOFFREY JAMES TURNER

SIGNATURE . . . . . DATE / /

REF 144034

DWG 144103DA 17/10/01 VERSION A

Sheet 11 of 11 sheets

. . . . . .

DATE / /

COUNCIL DELEGATE SIGNATURE

Original sheet size A3

MODIFICATION TABLE

RECORD OF ALL ADDITIONS OR CHANGES TO THE PLAN

WARNING: THE IMAGE OF THIS PLAN/DOCUMENT HAS BEEN DIGITALLY AMENDED. NO FURTHER AMENDMENTS ARE TO BE MADE TO THE ORIGINAL PLAN/DOCUMENT.

PLAN NUMBER

PS 336562G

MASTER PLAN (STAGE 1) REGISTERED DATE:15/5/96 TIME:2.15 PM

LAND	MODIFICATION	DEALING REFERENCE	DATE AND TIME		NEW EDITION NUMBER	SIGNATURE OF ASSISTANT REGISTRAR OF TITLES
			DATE	TIME		
THIS PLAN	SPECIAL RULES RECORDED	U 460606 L	23/10/96	12-35 pm	2	
THIS PLAN	ALTERATION OF ENTITLEMENT AND LIABILITY	U 470024 J	29/10/96	11-10 am	3	
THIS PLAN	SPECIAL RULES RECORDED	V974791 V	4/5/99	10·45	4	GJN
THIS PLAN	CHANGE OF ADDRESS	V974792S	4/5/99	10·45	4	GJN
LOT S2	STAGE 2 & REMOVAL OF PART OF E-1	W476996P	21/1/00	12.15PM	5	GJN
LOT S3	STAGE 3	X796915B	31/10/01	11.00AM	6	GJN
THIS PLAN	CHANGE OF ADDRESS OF BODY CORPORATE	AB653398S	04/11/02	2.55PM	7	AD
THIS PLAN	**ADDITIONAL RULES APPLY**	**AC096004N**	**30/05/03**		**8**	**Robert Redman**

Department of Environment, Land, Water & Planning

Owners Corporation Search Report

Produced: 06/08/2024 01:48:11 PM

OWNERS CORPORATION 1
PLAN NO. PS336562G

The land in PS336562G is affected by 1 Owners Corporation(s)

Land Affected by Owners Corporation:
Common Properties 1, 2, Lots 1 - 80, A.

Limitations on Owners Corporation:
Unlimited

Postal Address for Services of Notices:
TIDEWAYS PTY LTD LEVEL 3 521 TOORAK ROAD TOORAK VIC 3142

AR765054N 14/12/2018

Owners Corporation Manager:
NIL

Rules:
Model Rules apply unless a matter is provided for in Owners Corporation Rules. See Section 139(3) Owners Corporation Act 2006

Owners Corporation Rules:
1. AS856827R 24/12/2019

Additional Owners Corporation Information:
NIL

Notations:
NIL

Entitlement and Liability:
NOTE – Folio References are only provided in a Premium Report.

Land Parcel	Entitlement	Liability
Common Property 1	0	0
Common Property 2	0	0
Lot 1	100	100
Lot 2	100	100
Lot 3	100	100
Lot 4	100	100
Lot 5	100	100

Secure Electronic Registries Victoria (SERV), Level 13, 697 Collins Street Docklands 3008
Locked bag 20005, Melbourne 3001, DX 210189
ABN 86 627 986 396

Department of Environment, Land, Water & Planning

Owners Corporation Search Report

Produced: 06/08/2024 01:48:11 PM

OWNERS CORPORATION 1
PLAN NO. PS336562G

Entitlement and Liability:

NOTE – Folio References are only provided in a Premium Report.

Land Parcel	Entitlement	Liability
Lot 6	100	100
Lot 7	100	100
Lot 8	100	100
Lot 9	100	100
Lot 10	100	100
Lot 11	100	100
Lot 12	100	100
Lot 13	100	100
Lot 14	100	100
Lot 15	100	100
Lot 16	100	100
Lot 17	100	100
Lot 18	100	100
Lot 19	100	100
Lot 20	100	100
Lot 21	100	100
Lot 22	100	100
Lot 23	100	100
Lot 24	100	100
Lot 25	100	100
Lot 26	100	100
Lot 27	100	100
Lot 28	100	100
Lot 29	100	100
Lot 30	100	100
Lot 31	100	100
Lot 32	100	100
Lot 33	100	100
Lot 34	100	100

Secure Electronic Registries Victoria (SERV), Level 13, 697 Collins Street Docklands 3008
Locked bag 20005, Melbourne 3001, DX 210189
ABN 86 627 986 396

Department of Environment, Land, Water & Planning

Owners Corporation Search Report

Produced: 06/08/2024 01:48:11 PM

OWNERS CORPORATION 1
PLAN NO. PS336562G

Entitlement and Liability:

NOTE – Folio References are only provided in a Premium Report.

Land Parcel	Entitlement	Liability
Lot 35	100	100
Lot 36	100	100
Lot 37	100	100
Lot 38	100	100
Lot 39	100	100
Lot 40	100	100
Lot 41	100	100
Lot 42	100	100
Lot 43	100	100
Lot 44	100	100
Lot 45	100	100
Lot 46	100	100
Lot 47	100	100
Lot 48	100	100
Lot 49	100	100
Lot 50	100	100
Lot 51	100	100
Lot 52	100	100
Lot 53	100	100
Lot 54	100	100
Lot 55	100	100
Lot 56	100	100
Lot 57	100	100
Lot 58	100	100
Lot 59	100	100
Lot 60	100	100
Lot 61	100	100
Lot 62	100	100
Lot 63	100	100

Secure Electronic Registries Victoria (SERV), Level 13, 697 Collins Street Docklands 3008
Locked bag 20005, Melbourne 3001, DX 210189
ABN 86 627 986 396

Department of Environment, Land, Water & Planning

Owners Corporation Search Report

Produced: 06/08/2024 01:48:11 PM

OWNERS CORPORATION 1
PLAN NO. PS336562G

Entitlement and Liability:

NOTE – Folio References are only provided in a Premium Report.

Land Parcel	Entitlement	Liability
Lot 64	100	100
Lot 65	100	100
Lot 66	100	100
Lot 67	100	100
Lot 68	100	100
Lot 69	100	100
Lot 70	100	100
Lot 71	100	100
Lot 72	100	100
Lot 73	100	100
Lot 74	100	100
Lot 75	100	100
Lot 76	100	100
Lot 77	100	100
Lot 78	100	100
Lot 79	100	100
Lot 80	100	100
Lot A	100	100
Total	**8100.00**	**8100.00**

From 31 December 2007 every Body Corporate is deemed to be an Owners Corporation. Any reference to a Body Corporate in any Plan, Instrument or Folio is to be read as a reference to an Owners Corporation.

Statement End.

Secure Electronic Registries Victoria (SERV), Level 13, 697 Collins Street Docklands 3008
Locked bag 20005, Melbourne 3001, DX 210189
ABN 86 627 986 396

14 The Ridge Oakland Junction

ResCode Clause 54
One Dwelling on a Lot
Planning Report

Users of Clause 54: One Dwelling on a Lot and Clause 55: Two or More Dwellings on a Lot and Residential Buildings, **should have regard to the requirements of the Schedule to the relevant Residential Zone, which may vary 6 standards of Clause 54 and Clause 55 or specify that a planning permit is required for a single dwelling on a lot of between 300m² and 500m², which would be assessed under Clause 54.**

CLAUSE 54.01
NEIGHBOURHOOD & SITE DESCRIPTION & DESIGN RESPONSE

An application must be accompanied by:
- A Neighbourhood and site description.
- A Design Response

CLAUSE 54.01-1
NEIGHBOURHOOD AND SITE DESCRIPTION

The neighbourhood and site description may use a site plan, photographs or other techniques and must accurately describe:

- **In relation to the neighbourhood**
  - The built form, scale and character of surrounding development including front fencing.
  - Architectural and roof styles.
  - Any other notable features or characteristics of the neighbourhood.
- **In relation to the site**
  - Site shape, size, orientation and easements.
  - Levels of the site and the difference in levels between the site and surrounding properties.
  - Location of existing buildings on the site and on surrounding properties, including the location and height of walls built to the boundary of the site.
  - The use of surrounding buildings.
  - The location of secluded private open space and habitable room windows of surrounding properties which have an outlook to the site within 9 metres.
  - Solar access to the site and to surrounding properties.
  - Location of significant trees existing on the site and any significant trees removed from the site in the 12 months prior to the application being made, where known.
  - Any contaminated soils and filled areas, where known.
  - Views to and from the site.
  - Street frontage features such as poles, street trees and kerb crossovers.
  - Any other notable features or characteristics of the site.

Not Applicable
✓ Complies
Does Not Comply
Variation Required

Comments

See attached plans/ for neighbourhood site description and design response and assessment against neighbourhood character (page 1/7).

It is proposed single dwelling, refer to (page 2/7).

CLAUSE 54.01-2
DESIGN RESPONSE

The design response must explain how the proposed design:
- Derives from, and responds to the neighbourhood and site description.
- Meets the objectives of Clause 54.
- Responds to any neighbourhood character features for the area identified in a local planning policy or a Neighbourhood Character Overlay.

Not Applicable
✓ Complies
Does Not Comply
Variation Required

• The design response must include correctly proportioned street elevations or photographs showing the development in the context of adjacent buildings.	**Comments** See attached design response plan (page 7/7). The Proposed is single dwelling, Associated Garage & pool.
CLAUSE 54.02 **NEIGHBOURHOOD CHARACTER**	
CLAUSE 54.02-1 **NEIGHBOURHOOD CHARACTER** **Objectives** To ensure that the design respects the existing neighbourhood character or contributes to a preferred neighbourhood character. To ensure that the design responds to the features of the site and the surrounding area. **Standard A1** • The design response **must** be appropriate to the neighbourhood and the site. • The proposed design **must** respect the existing or preferred neighbourhood character and respond to the features of the site. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *Any relevant neighbourhood character objective, policy or statement set out in this scheme.* • *The neighbourhood and site description.* • *The design response.*	Not Applicable ✓ Complies Does Not Comply Variation Required **Comments** The front setbacks to the facade is to match surrounding dwellings. Walls & roofs materials are acceptable in the context of the surrounding dwellings. The proposed dwelling is setback from all boundaries so it will not impact on adjoining sites. It is therefore considered that the development responds well to the neighborhood character in terms of design, materials, setbacks (rhythm of dwelling spacing), setbacks to adjoining dwellings and rear yards. The development satisfies the objectives and standard.
CLAUSE 54.02-2 **INTEGRATION WITH THE STREET** **Objective** To integrate the layout of development with the street. **Standard A2** • Dwellings should be orientated to front existing and proposed streets • High fencing in front of dwellings should be avoided if practicable. Dwellings should be designed to promote the observation of abutting streets and any abutting public open spaces. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *Any relevant neighbourhood character objective, policy or statement set out in this scheme.* • *The design response.*	Not Applicable ✓ Complies Does Not Comply Variation Required **Comments** The proposed dwelling is oriented to the street
CLAUSE 54.03 **SITE LAYOUT AND BUILDING MASSING**	
CLAUSE 54.03-1 **STREET SETBACK** **Objective**	Not Applicable ✓ Complies Does Not Comply

To ensure that setbacks of buildings from a street respect the existing or preferred neighbourhood character and make efficient use of the site **Standard A3** Walls of buildings should be setback from streets the distance specified in Table A1 as follows: • Where there are existing buildings on both abutting lots facing the same street, and the site is not on a corner, the average distance of front walls of existing adjacent buildings facing the same street or 9m, whichever is lesser. • Where there is an existing buildings on one abutting lot facing the same street, and no existing building on the other abutting lot facing the same street and the site is not on a corner, the same distance as the front wall of the existing adjacent building or 9m, whichever is lesser. • Where there is no existing buildings on either abutting lot facing the same street and the site is not on a corner, 6m for streets in a Road Zone Category 1, and 4m for other streets. • Where the site is on a corner, and there is a building on the abutting lot facing the front street, the same distance as the setback of the front wall of the existing abutting building facing the front street, or 9m whichever is lesser. • Where the site is on a corner and there is no building on the abutting lot facing the front street, 6m for streets in a Road Zone Category 1, and 4m for other streets. • Buildings should be setback from the side street of a corner site, the same distance as the setback of the front wall of any existing building on the abutting allotment facing the side street, or 2m, whichever is the lesser. **Note 1:** for a corner lot, the frontage or front street is the smaller frontage. For lots with equal frontage to two streets, the Council may nominate the frontage or front street. **Note 2:** Porches, pergolas and verandahs that are less than 3.6m high and eaves may encroach not more than 2.5m into the setbacks of this standard. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *Any relevant neighbourhood character objective, policy or statement set out in this scheme.* • *The design response.* • *Whether a different setback would be more appropriate taking into account the prevailing setbacks of existing buildings on nearby lots.* • *The visual impact of the building when viewed from the street and adjoining properties.* • *The value or retaining vegetation within the front setback.*	**Variation Required** **Comments** Street setbacks are defined by council's regulations.
CLAUSE 54.03-2 **BUILDING HEIGHT** **Objective** To ensure that the height of the buildings respects the existing or preferred neighbourhood character **Standard A4** • The maximum building height should not exceed 9m, unless the slope of the natural ground level at any cross section wider than 8m of the site of the building is 2.5 degrees or more, in which case the maximum building height should not exceed 10m. • Change of building height between existing buildings and new buildings should be graduated. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *Any relevant neighbourhood character objective, policy or statement set out in this scheme.* • *The design response.* • *The effect of the slope of the site on the height of the building.* • *The relationship between the proposed building height and the height of existing adjacent buildings.*	**Not Applicable** ✓ **Complies** **Does Not Comply** **Variation Required** **Comments** The proposed overall height is 7.5m at its maximum and thus less than the standard 9m. No wall is proposed on boundary.

• *The visual impact of the building when viewed from the street and adjoining properties.*	
CLAUSE 54.03-3 **SITE COVERAGE** **Objective** To ensure that the site coverage respects the existing or preferred neighbourhood character and responds to the features of the site **Standard A5** • The site area covered by buildings should not exceed 60%. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *Any relevant neighbourhood character objective, policy or statement set out in this scheme.* • *The design response.* • *The existing site coverage and any constraints imposed by existing development or the features of the site.* • *The site coverage of adjacent properties.* • *The effect of the visual bulk of the building and whether this is acceptable in the neighbourhood.*	Not Applicable Complies ✓ Does Not Comply Variation Required **Comments** Site coverage is 21.0%
CLAUSE 54.03-4 **PERMEABILITY** **Objectives** To reduce the impact of increased stormwater run-off on the drainage system. To facilitate on-site stormwater infiltration **Standard A6** • At least 20 % of the site should not be covered by impervious surfaces. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *The design response* • *The existing site coverage and any constraints imposed by existing development or the features of the site.* • *The capacity of the drainage network to accommodate additional stormwater.* • *The capacity of the site to absorb run-off.* • *The practicality of achieving at least 20 per-cent site coverage of pervious surfaces, particularly on lots of less than 300m2.*	Not Applicable ✓ Complies Does Not Comply Variation Required **Comments** Site permeability is 64.5%
CLAUSE 54.03-5 **ENERGY EFFICIENCY PROTECTION** **Objectives** To achieve and protect energy efficient dwellings. To ensure the orientation and layout of development reduce fossil fuel energy use and make appropriate use of daylight and solar energy. **Standard A7** • Buildings should be: - Orientated to make appropriate use of solar energy. - Sited and designed to ensure that the energy efficiency of existing dwellings on adjoining lots is not unreasonably reduced. • Living areas and private open space should be located on the north side of the development, if practicable. • Dwellings should be designed so that solar access to north-facing windows is maximised.	Not Applicable ✓ Complies Does Not Comply Variation Required **Comments** Modern methods of insulation will be used in the proposal. The living areas will have improved access to daylight and north facing. The open space will maintain access to north light.

Before deciding on an application, the responsible authority must consider: • *The design response* • *The size, orientation and slope of the lot.* • *The existing amount of solar access to abutting properties.* • *The availability of solar access to north facing windows on the site.*	It will maximise energy efficiency. Neighbours energy efficiency will not be unreasonably compromised.
CLAUSE 54.03-6 **SIGNIFICANT TREES** **Objectives** To encourage development that respects the landscape character of the neighbourhood. To encourage the retention of significant trees on the site **Standard A8** • Development should provide for the retention or planting of trees, where these are part of the neighbourhood character. • Development should provide for the replacement of any significant trees that have been removed in the 12 months prior to the application being made. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *Any relevant neighbourhood character objective, policy or statement set out in this scheme.* • *The design response.* • *The health of any trees that were removed or are proposed to be removed.* • *Whether a tree was removed to gain a development advantage.*	**Not Applicable** ✓ **Complies** **Does Not Comply** **Variation Required** **Comments** No significant trees are located on the site. The proposed setbacks comply with Council's requirements.
CLAUSE 54.03-7 **PARKING** **Objective** To ensure that car parking is adequate for the needs of residents. **Standard A9** Two car spaces should be provide per dwelling with: • one space at least 6m x 3.5m and covered or capable of being covered. • One space at least 4.9m x 2.6m. • If the car spaces are in a garage, car port or otherwise constrained by walls, a double space may have an internal width of 5.5m. • A building may project into a car space if it is at least 2.1m above the space. **Note:** the requirements of this standard do not apply to extensions to existing dwellings. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *The likely needs of users* • *The practicality of providing car parking on the site, particularly for lots of less than 300 square metres.* • *The reduction of on-street car parking spaces resulting from the provision of car parking on the site, particularly for lots of less than 300 square metres.* • *The availability of public transport and on-street parking.* • *Any relevant local planning policy or parking precinct plan.*	**Not Applicable** ✓ **Complies** **Does Not Comply** **Variation Required** **Comments** Proposed dwelling is provided associated garage.
CLAUSE 54.04 **AMENITY IMPACTS**	

CLAUSE 54.04-1
SIDE AND REAR SETBACKS

Objective
To ensure that the height and setback of a building from a boundary respects the existing or preferred neighbourhood character and limits the impact on the amenity of existing dwellings.

Standard A10
- New building not on, or within 150mm of boundary should be setback from side or rear boundaries:
  - 1m, plus 0.3m for every metre height over 3.6m up to 6.9m, plus 1m for every metre height over 6.9m.
- Sunblinds, verandahs, porches, eaves, gutters etc may encroach not more than 0.5m into the setbacks of this standard.
- Landings with an area of not more than $2m^2$, and less than 1m high, stairways, ramps, pergolas, shade sails and carports may encroach into the setbacks of this standard.

Decision Guidelines
Before deciding on an application, the responsible authority must consider:
- *Any relevant neighbourhood character objective, policy or statement set out in this scheme.*
- *The design response.*
- *The impact on the amenity of the habitable room windows and secluded private open space of existing dwellings.*
- *Whether the wall is opposite an existing or simultaneously constructed wall built to the boundary.*
- *Whether the wall abuts a side or rear lane.*

Not Applicable
✓ **Complies**
Does Not Comply
Variation Required

Comments

All setbacks comply.

CLAUSE 54.04-2
WALLS ON BOUNDARIES

Objective
To ensure that the location, length and height of a wall on a boundary respects the existing or preferred neighbourhood character and limits the impact on the amenity of existing dwellings.

Standard A11
- New wall on or within 150mm of a side or rear boundary of a lot, or a carport on or within 1m of a side or rear boundary should not abut the boundary for a length of more than:
  - 10m plus 25% of the remaining length of the boundary of an adjoining lot; or
  - the length of an existing or simultaneously constructed wall or carport whichever is the greater.
- A new wall or carport may fully abut a side or rear boundary where the slope and retaining walls would result in the effective height of the wall or carport being less than 2m on the abutting property boundary.
- A building on a boundary includes a building up to 150mm from a boundary.
- New wall on or within 150mm of a side or rear boundary of a lot, or a carport on or within 1m of a side or rear boundary should not exceed an average of 3m height, with no part higher than 3.6m, unless abutting a higher existing or simultaneously constructed wall.

Decision Guidelines
Before deciding on an application, the responsible authority must consider:
- *Any relevant neighbourhood character objective, policy or statement set out in this scheme.*
- *The design response.*
- *The extent to which wall on boundaries are part of the neighbourhood character.*
- *The visual impact of the building when viewed from adjoining properties.*
- *The impact on the amenity of existing dwellings.*

Not Applicable
✓ **Complies**
Does Not Comply
Variation Required

Comments

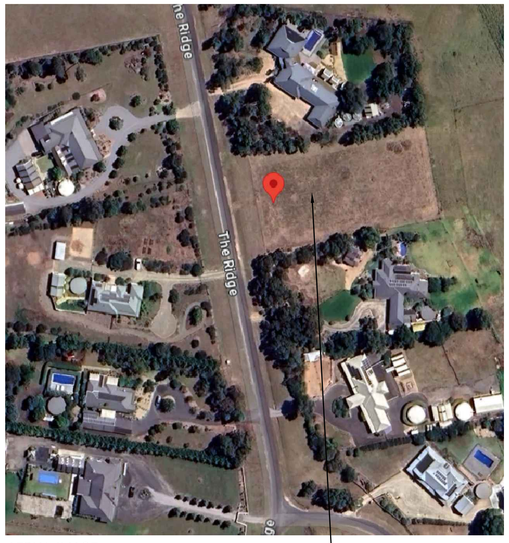
No proposed walls on boundary.

• *The opportunity to minimise the length of walls on boundaries by aligning a new wall on a boundary with an existing wall on a lot of an adjoining property.* • *The orientation of the boundary that the wall is being built on.* • *The width of the lot.* • *Whether the wall abuts a side or rear lane.* • *The need to increase the wall height to screen a box gutter.*	
CLAUSE 54.04-3 **DAYLIGHT TO EXISTING WINDOWS** **Objective** To allow adequate daylight into existing habitable room windows. **Standard A12** • Buildings opposite an existing habitable room window should provide for a light court to the existing window, of at least 3m² and 1m clear to the sky. The area may include land on the abutting lot. • Walls or carports more than 3m height opposite an existing habitable room window should be setback from the window at least 50% of the height of the new wall if the wall is within a 55 degree arc from the centre of the existing window. The arc may be swung to within 35 degrees of the plane of the wall containing the existing window. **Note:** Where the existing window is above ground level, the wall height is measured from the floor level of the room containing the window. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *The design response.* • *The extent to which the existing dwelling has provided for reasonable daylight access to its habitable rooms through the siting and orientation of its habitable room windows.* • *The impact on the amenity of existing dwellings.*	**Not Applicable** ✓ **Complies** **Does Not Comply** **Variation Required** **Comments** The proposal does not impact on adjoining habitable room windows.
CLAUSE 54.04-4 **NORTH FACING WINDOWS** **Objective** To allow adequate solar access to existing north facing habitable room windows. **Standard A13** • If a north-facing habitable room window of an existing dwelling is within 3m of a boundary of an abutting lot, a building should be setback: - 1m, plus 0.6m for every metre height over 3.6m up to 6.9m, plus 1m for every metre height over 6.9m, for a distance of 3m from the edge of each side of the window. **Note:** A north facing window is a window with an axis perpendicular to its surface orientated north 20 degrees west to north 30 degrees east. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *The design response.* • *Existing sunlight on the north-facing habitable room window of the existing dwelling* • *The impact on the amenity of existing dwellings.*	**Not Applicable** ✓ **Complies** **Does Not Comply** **Variation Required** **Comments** The proposal does not impact on habitable room windows.
CLAUSE 54.04-5 **OVERSHADOWING OPEN SPACE** **Objective** To ensure buildings do not unreasonably overshadow existing secluded private open space. **Standard A14**	**Not Applicable** ✓ **Complies** **Does Not Comply** **Variation Required**

• Where sunlight to the secluded private open space of an existing dwelling is reduced, at least 75%, or 40m² with a minimum dimension of 3m, whichever is the lesser area, or the secluded open space should receive a minimum of 5 hours sunlight between 9am and 3pm at 22 September. • If existing sunlight to the secluded private open space of a dwelling is less than the requirements of this standard, the amount of sunlight should not be further reduced. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *The design response.* • *The impact on the amenity of existing dwellings.* • *Existing sunlight penetration to the secluded private open space of the existing dwelling.* • *The time of day that sunlight is available to the secluded private open space of the existing dwelling.* • *The effect of a reduction in sunlight on the existing use of the secluded private open space.*	**Comments** Refer to page 4/6 for overshadowing plans.
CLAUSE 54.04-6 **OVERLOOKING** **Objective** To limit views into existing secluded private open space and habitable room windows. **Standard A15** • Habitable room windows, balconies, terraces etc should be located and designed to avoid direct view to secluded private open space and habitable room windows of an existing dwelling within 9m distance, and a 45 degree arc from the window, balcony etc. • The window, balcony etc may: - Be offset at least 1.5m from the edge of one window to the edge of the other; or - Have sill heights, obscure glazing or permanent screens of al least 1.7m above floor level. • Obscure glazing may be openable provided it does not allow direct views. **Note:** This standard does not apply to a new habitable room window, balcony, terrace etc which faces a property boundary where there is a visual barrier at least 1.8m hight and the floor level of the habitable room, balcony, terrace etc is less than 0.8m above ground level at the boundary. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *The design response.* • *The impact on the amenity of the secluded private open space or habitable room window.* • *The existing extent of overlooking into the secluded private open space and habitable room windows of existing dwellings.* • *The internal daylight to and amenity of the proposed dwelling.*	Not Applicable ✓ Complies Does Not Comply Variation Required **Comments**
CLAUSE 54.05 **ON-SITE AMENITY AND FACILITIES**	
CLAUSE 54.05-1 **DAYLIGHT TO NEW WINDOWS** **Objective** To allow adequate daylight into new habitable room windows. **Standard A16** • A window in a habitable room should be located to face: - an outdoor space clear to the sky or a light court with a minimum area of 3m² and a minimum dimension of 1m, not including land on an abutting lot, or	Not Applicable ✓ Complies Does Not Comply Variation Required

- a verandah provided it is open for at least 1/3rd of its perimeter, or - a carport provided it has two or more open sides and is open for at least 1/3rd of its perimeter. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *The design response.* • *Whether there are other windows in the habitable room which have access to daylight.*	**Comments** All habitable rooms will receive ample daylight.
CLAUSE 54.05-2 **PRIVATE OPEN SPACE** **Objective** To provide adequate private open space for the reasonable recreation and service needs of residents. **Standard A17** • A dwelling should have private open space of: - 80m² or 20% of the lot area, whichever is the lesser, but not less than 40m². - At least one part of the private open space should consist of secluded private open space with a minimum area of 25m² and a minimum dimension of 3m at the side or rear of the dwelling, with convenient access from a living room. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *The design response.* • *The useability of the private open space, including its size and accessibility.* • *The availability of and access to public open space.* • *The orientation of the lot to the street and the sun.*	**Not Applicable** ✓ **Complies** **Does Not Comply** **Variation Required** **Comments** private open space is located to rear.
CLAUSE 54.05-3 **SOLAR ACCESS TO OPEN SPACE** **Objective** To allow solar access into the secluded private open space of a new dwelling. **Standard A18** • The private open space should be located on the north side of the dwelling, if practicable. • The southern boundary of secluded private open space should be setback from any wall on the north of the space at least (2 +0.9h), where 'h' is the height of the wall. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider: The design response; The useability and amenity of the secluded private open space based on the sunlight it will receive.*	**Not Applicable** ✓ **Complies** **Does Not Comply** **Variation Required** **Comments** Open space will receive adequate sunlight and north facing.
CLAUSE 54.06 **DETAILED DESIGN**	
CLAUSE 54.06-1 **DESIGN DETAIL** **Objective** To encourage design detail that respects the existing or preferred neighbourhood character. **Standard A19** • The design of buildings should respect the existing or preferred neighbourhood character, including: - Façade articulation and detailing.	**Not Applicable** ✓ **Complies** **Does Not Comply** **Variation Required**

- window and door proportions; - roof form; and - verandahs, eaves and parapets. • Garages and carports should be visually compatible with the development and the existing or preferred neighbourhood character. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *Any relevant neighbourhood character objective, policy or statement set out in this scheme.* • *The design response.* • *The effect on the visual bulk of the building and whether this is acceptable in the neighbourhood setting.* • *Whether the design is innovative and of a high architectural standard.*	**Comments** The detailed design is appropriate. The materials are acceptable in the context of the surrounding dwellings.
CLAUSE 54.06-2 **FRONT FENCES** **Objective** To encourage front fence design that respects the existing or preferred neighbourhood character. **Standard A20** • The design of front fences should complement the design of the dwelling and any front fences on adjoining properties. • A front fence within 3m of a street should not exceed: - 2m height for streets in a Road Zone, Category 1; or - 1.5m height for any other street. ***Decision Guidelines*** *Before deciding on an application, the responsible authority must consider:* • *Any relevant neighbourhood character objective, policy or statement set out in this scheme.* • *The design response.* • *The setback, height and appearance of front fences on adjacent properties.* • *The extent to which slope and retaining walls reduce the effective height of the front fence.* • *Whether the fence is needed to minimise noise intrusion.*	**Not Applicable** ✓ **Complies** **Does Not Comply** **Variation Required** **Comments** 1800mm high rendered brick piers with aluminum slats.



AERIAL IMAGE

subject site

Post & Wire Fence

title boundary 50.01m (168° 59' 20")

5000

underground septic ST4550 LITRE tank

above ground 71.097 LITRE water tank

above ground 71.097 LITRE water tank

GREEN LINE DENOTES BUILDING ENVELOP

Private Open Space

Pool

Shed

Shed

High Privacy Screen

3390

5660

14810

No.12 Single Storey Brick Dwelling

Alfresco

Verandah

Verandah

Stables

3855

title boundary 86.16m (77° 48')

title boundary 87.20m (77° 48')

5090

8690

6900

2700

1800

6470

5000

FFL 238.90

FFL 238.20

CRUSHED ROCK DRIVEWAY

elec meter box

Pool

No.16 Sirgle Storey Brick Dwelling

Verandah

19500

19210

22010

30500

25000

25300

20000

20000

25000

27800

36115 - APPROX.

47000 - APPROX.

Driveway

Driveway

sliding gates

title boundary 50.0m (347° 48')

1500mm high post & rail (typ). colour - white

mail box

existing elec pit

proposed 5.0m wide cross over

THE RIDGE

TBM Nail RL 239.40

Schedule Of Areas

Site Area	4333.94 m²
PROPOSED RESIDENCE	
Floor plan	653.0 m²
Garage	115.2 m²
Porch	15.2 m²
Entry Foyer	29.1 m²
Front Verandah	22.5 m²
Outdoor Area	65.0 m²
Total Area	900.0 m²
Site Coverage	21.0 %
Site Permeability	64.5 %

ISSUE	REVISION DESCRIPTION	DATE
A	AS PER TIDE CONSTRUCT R.F.I DATED 4/07/24	July - 2024
B	PLANNING SUBMISSION	Aug - 2024
C	AS PER COUNCIL'S R.F.I DATED 9/9/2024	Sep - 2024
D	AS PER COUNCIL'S R.F.I DATED 30/9/2024	Oct - 2024
E	AS PER COUNCIL'S R.F.I DATED 15/01/2025	Jan - 2025
F	AS PER ARC REPORT DATED 21/02/25	Feb - 2025

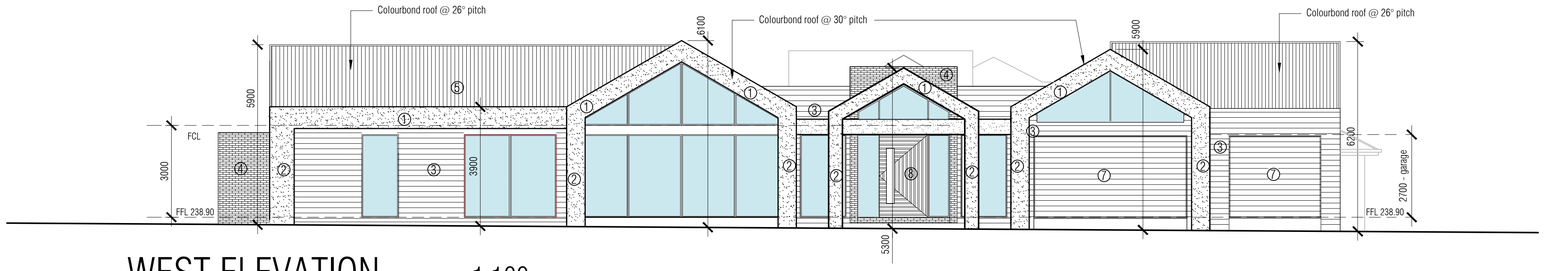
[redacted]

Project:
Proposed Single Dwelling

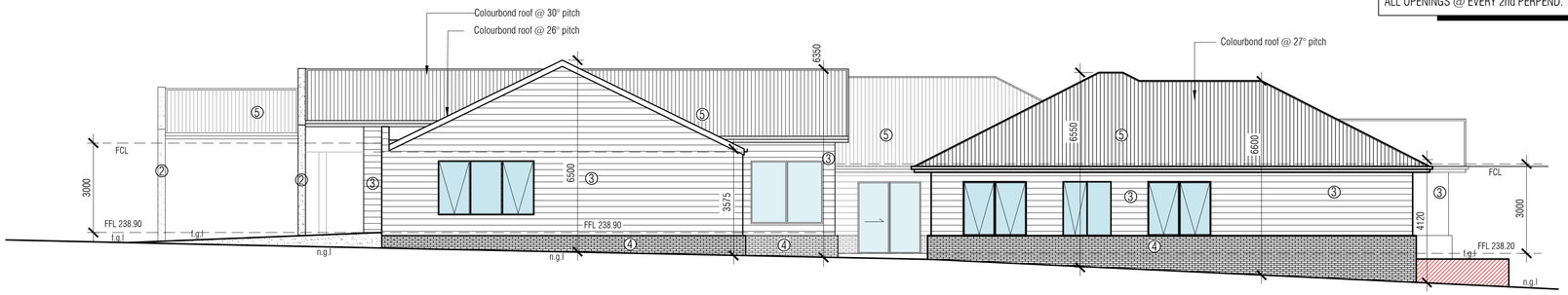
Address:
14 The Ridge Oakland Junction

[redacted]

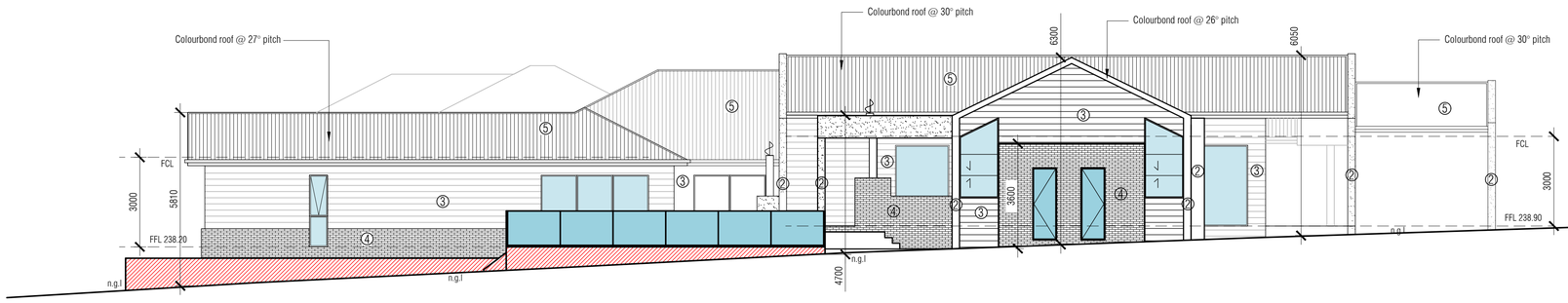
ISSUE	REVISION DESCRIPTION	DATE
A	AS PER TIDE CONSTRUCT R.F.I DATED 4/07/24	July - 2024
B	PLANNING SUBMISSION	Aug - 2024
C	AS PER COUNCIL'S R.F.I DATED 9/9/2024	Sep - 2024
D	AS PER COUNCIL'S R.F.I DATED 30/9/2024	Oct - 2024
E	AS PER COUNCIL'S R.F.I DATED 15/01/2025	Jan - 2025
F	AS PER ARC REPORT DATED 21/02/25	Feb - 2025



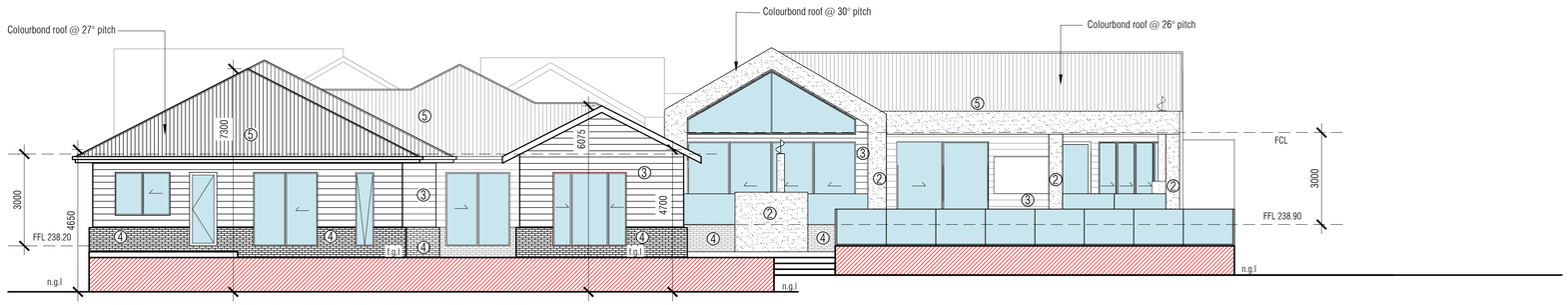
WEST ELEVATION 1:100



SOUTH ELEVATION 1:100



NORTH ELEVATION 1:100



EAST ELEVATION 1:100

Materials Schedule

Description	Colour
1. Canopies & Gables Compressed Cement Sheets Rendered - White By Dulux	
2. Piers Bricks Rendered - White By Dulux	
3. Walls James Hardie - Linea TM Weatherboards Painted - Colour - White By Dulux	
4. Walls Facebrick Colour - White by hume bricks	
5. Roof - Colourbond Flashing, Fascia & Gutter Colour - Bluegum	
6. Windows & Doors Aluminum - Powder coated Colour - Bluegum	
7. Flush Mount Garage Doors Sectional - Timber Horizontal cladding Colour - White	
8. Entry Door - Solid Timber Timber Vertical batten cladding Colour - White	
9. Driveway - Concrete Exposed Aggregate Charcoal	

- COLOURBOND ROOF AT 30° PITCH

- CAVITY FLASHING AND WEEP HOLES TO PERIMETER OF BUILDING BELOW FLOOR LEVEL @ EVERY 4th PERPEND AND ABOVE ALL OPENINGS @ EVERY 2nd PERPEND.

HATCHED AREA DENOTES PROPOSED CONCRETE BLOCKS RETAINING SLEEPERS

Environmentally Sustainable Development Initiative

- WATER
- The following water efficient fittings will be used throughout:
- Toilets minimum 4 stars WELS rated
- Taps minimum 5 stars WELS rated
- Showers minimum 4 stars WELS rated (>=6.0L/minute but <=7.5L/minute)
- A dishwasher with a minimum 4 stars WELS rated will be provided in each unit
- Suitable plants which can withstand long dry periods will be used

- ENERGY
- The dwelling will achieve a minimum average energy efficiency rating of 7.0 stars
- Reverse cycle air conditioning units will provide heating and cooling. Air conditioning systems
- installed in the project will be selected with a minimum 5 star energy efficiency rating.
- Hot water will be provided by an electric heat pump HW unit
- Internal walls and ceilings will be finished with light colours
- LED bulbs will be used to provide artificial lighting. Development will achieve a max illumination
- power density of 4W/sqm or less and therefore will achieve a maximum illumination power
- density of 20% lower than the NCC requirements
- External lighting will be controlled by motion detectors
- A clothes drying line will be provided in each unit private open space.

STORMWATER
- A rainwater harvesting system will collect roof surfaces rainwater and divert it to an above ground 12,000 litres rainwater storage tank. Tank Water will be reticulated to all toilets, washing machine and used for garden irrigation
- Pervious paving will be used for the driveway and the footpaths in the landscaped garden
- Three above ground rainwater gardens with a total area of 12 sqm (RG1 - 4 sqm, RG2 – 4 sqm & RG3 - 4 sqm) will be installed to collect surface rainwater from 310 sqm of the roof
- Rainwater will be collected from the roof and discharged as shown on the WSUD Strategies Plan which is attached in Appendix C of SDA report

IEQ
- Windows and glazed doors in Living areas and Bedrooms will be fitted with double glazed glass panels (Uw 3.9 and SHGC 0.58)

TRANSPORT
- A wall mounted bicycle rack will be provided in the garage
- The electricity supply conduit to the garage will be upgraded to allow for the fitting of an electric motor car power point for the charging of electrical vehicles. The level and amperage of the electrical vehicle charging point to be provided shall be 32 amp minimum

WASTE
- Recycling, FOGO, glass and general waste bins for council pickup will be stored on site BUILDING MATERIALS
- The builder will be contracted to commit to recycling a minimum of 70% of construction and demolition waste generated on site.
- In-situ concrete used throughout the project will incorporate recycled aggregate and recycled industrial waste to a level acceptable to the structural engineer
- All timber used in the project will be from accredited sustainably harvested plantation sources (FSC/PEFC certified timbers)
- All adhesives and sealants will be low VOC type

URBAN ECOLOGY
- 25% of the total area of the site will be covered with vegetation a

D

Project:
Proposed Single Dwelling

Address:
14 The Ridge Oakland Junction

ISSUE	REVISION DESCRIPTION	DATE
A	AS PER TIDE CONSTRUCT R.F.I DATED 4/07/24	July - 2024
B	PLANNING SUBMISSION	Aug - 2024
C	AS PER COUNCIL'S R.F.I DATED 9/9/2024	Sep - 2024
D	AS PER COUNCIL'S R.F.I DATED 30/9/2024	Oct - 2024
E	AS PER COUNCIL'S R.F.I DATED 15/01/2025	Jan - 2025
F	AS PER ARC REPORT DATED 21/02/25	Feb - 2025

RIDGE

THE

existing elec pit

proposed 5.0m wide cross over

title boundary 50.0m (347° 48')

title boundary
87.20m (77° 48')

underground septic ST4550 LITRE tank

above ground 2/ 71.097 LITRE water tank

title boundary 50.01m (168° 59' 20")

title boundary
86.16m (77° 48')

GREEN LINE DENOTES BUILDING ENVELOP

Project:
Proposed Single Dwelling

Address:
14 The Ridge Oakland Junction

ISSUE	REVISION DESCRIPTION	DATE
A	AS PER TIDE CONSTRUCT R.F.I DATED 4/07/24	July - 2024
B	PLANNING SUBMISSION	Aug - 2024
C	AS PER COUNCIL'S R.F.I DATED 9/9/2024	Sep - 2024
D	AS PER COUNCIL'S R.F.I DATED 30/9/2024	Oct - 2024
E	AS PER COUNCIL'S R.F.I DATED 15/01/2025	Jan - 2025
F	AS PER ARC REPORT DATED 21/02/25	Feb - 2025

RIDGE

THE

existing elec pit

proposed 5.0m
wide cross over

title boundary
87.20m (77° 48')

title boundary 50.0m (347° 48')

title boundary 50.01m (168° 59' 20")

underground septic ST4550 LITRE tank

above ground 2/ 71.097 LITRE water tank

title boundary
86.16m (77° 48')

GREEN LINE DENOTES BUILDING ENVELOP

Project:
Proposed Single Dwelling

Address:
14 The Ridge Oakland Junction

ISSUE	REVISION DESCRIPTION	DATE
A	AS PER TIDE CONSTRUCT R.F.I DATED 4/07/24	July - 2024
B	PLANNING SUBMISSION	Aug - 2024
C	AS PER COUNCIL'S R.F.I DATED 9/9/2024	Sep - 2024
D	AS PER COUNCIL'S R.F.I DATED 30/9/2024	Oct - 2024
E	AS PER COUNCIL'S R.F.I DATED 15/01/2025	Jan - 2025
F	AS PER ARC REPORT DATED 21/02/25	Feb - 2025

RIDGE

THE

existing elec pit

title boundary
87.20m (77° 48')

title boundary 50.0m (347° 48')

title boundary 50.01m (168° 59' 20")

proposed 5.0m
wide cross over

underground septic ST4550 LITRE tank

above ground 2/ 71.097 LITRE water tank

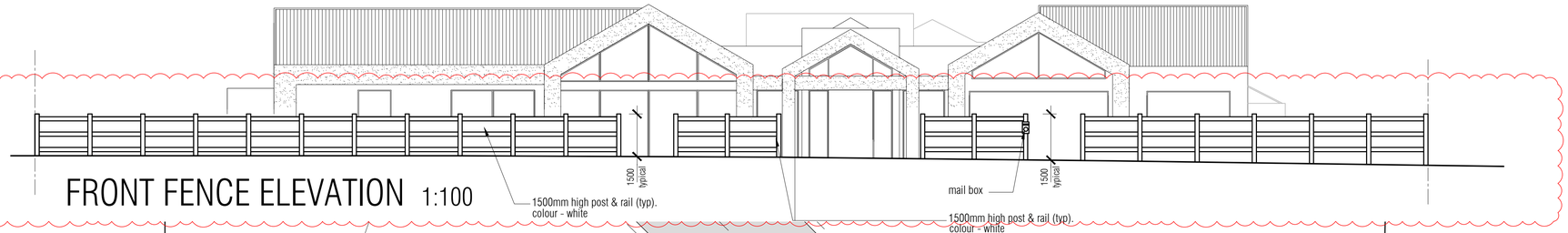
title boundary
86.16m (77° 48')

GREEN LINE DENOTES BUILDING ENVELOP

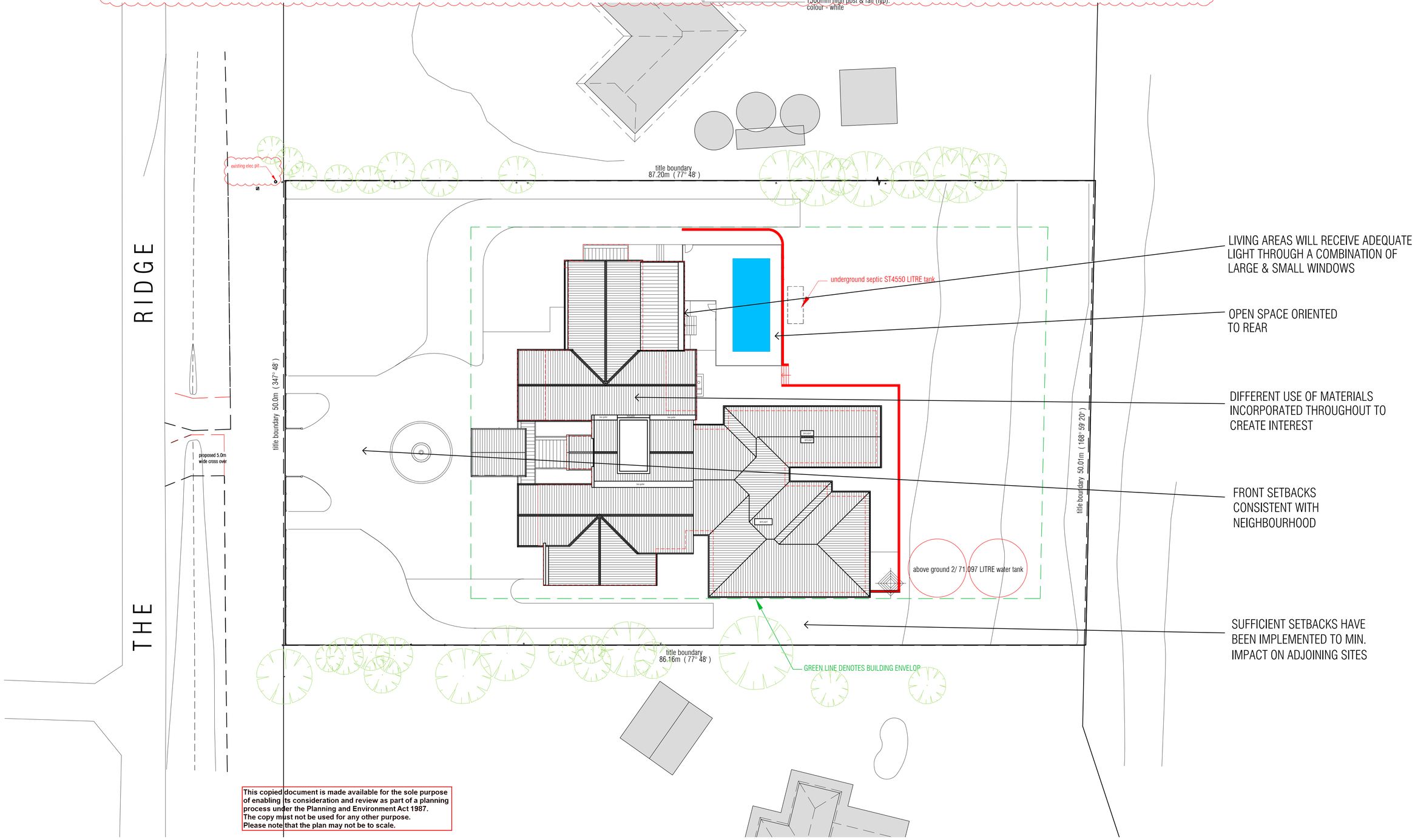
Project:
Proposed Single Dwelling

ISSUE	REVISION DESCRIPTION	DATE
A	AS PER TIDE CONSTRUCT R.F.I DATED 4/07/24	July - 2024
B	PLANNING SUBMISSION	Aug - 2024
C	AS PER COUNCIL'S R.F.I DATED 9/9/2024	Sep - 2024
D	AS PER COUNCIL'S R.F.I DATED 30/9/2024	Oct - 2024
E	AS PER COUNCIL'S R.F.I DATED 15/01/2025	Jan - 2025
F	AS PER ARC REPORT DATED 21/02/25	Feb - 2025

E



FRONT FENCE ELEVATION 1:100



LIVING AREAS WILL RECEIVE ADEQUATE LIGHT THROUGH A COMBINATION OF LARGE & SMALL WINDOWS

OPEN SPACE ORIENTED TO REAR

DIFFERENT USE OF MATERIALS INCORPORATED THROUGHOUT TO CREATE INTEREST

FRONT SETBACKS CONSISTENT WITH NEIGHBOURHOOD

SUFFICIENT SETBACKS HAVE BEEN IMPLEMENTED TO MIN. IMPACT ON ADJOINING SITES

[redacted]

Project:
Proposed Single Dwelling

Address:
14 The Ridge Oakland Junction

[redacted]

ISSUE	REVISION DESCRIPTION	DATE
A	AS PER TIDE CONSTRUCT R.F.I DATED 4/07/24	July - 2024
B	PLANNING SUBMISSION	Aug - 2024
C	AS PER COUNCIL'S R.F.I DATED 9/9/2024	Sep - 2024
D	AS PER COUNCIL'S R.F.I DATED 30/9/2024	Oct - 2024
E	AS PER COUNCIL'S R.F.I DATED 15/01/2025	Jan - 2025
F	AS PER ARC REPORT DATED 21/02/25	Feb - 2025

SUSTAINABLE DESIGN ASSESSMENT

Proposed New Dwelling at 14 The Ridge, Oaklands Junction

February 2025

Ref No 24-320-A

Contents

1.0 INTRODUCTION 3

2.0 BESS ASSESSMENT 3

3.0 ENVIRONMENTALLY SUSTAINABLE DESIGN INITIATIVES 4

3.1 BUILDING ENERGY USE 4
Energy Rating Assessment 4
Air Building Leakage 4
Window Glazing 4
Embodied Energy 4
Insulation 4
Self-Closing Exhaust Fans 5
Clothes Drying 5
3.1.2 HEATING, COOLING AND VENTILATION 6
Ventilation 6
Heating and Cooling System 6
Hot Water Service 6
3.1.3 ARTIFICIAL LIGHTING 6
Natural Lighting 6
Artificial Lighting 6
3.1.4 APPLIANCES 7

3.2 WATER CONSERVATION AND RE-USE 6
3.2.1 Rainwater Tank 6
3.2.2 Water Efficient Fittings 6
3.2.3 Water Metering 6

3.3 STORMWATER MANAGEMENT 7
3.3.1 Stormwater Quality 7
3.3.2 Stormwater Treatment 7

3.4 CAR AND BICYCLE PARKING 8
3.4.1 Car parking 8
3.4.2 Cyclist Facilities 8
3.4.3 Electric vehicle charge point 8

3.5 WASTE MANAGEMENT 8
3.5.1 Prefabrication and Pre-manufactured sizes 8
3.5.2 Waste Generation During Construction Phase 8
3.5.3 Materials Storage and Handling 9
3.5.4 Waste Storage and Handling 9
3.5.5 Operational Waste Management 9

3.6 BUILDING MATERIALS 9
3.6.1 Transport Energy 9
3.6.2 Roof 9
3.6.3 Walls 9
3.6.4 Concrete 9

3.6.5 Timber 9
3.6.6 Low VOC building materials 9
3.6.7 Durability 9

3.7 INDOOR ENVIRONMENTAL QUALITY 9
3.7.1 Indoor Air Quality 9
3.7.2 Noise 9

3.8 URBAN ECOLOGY 9
3.8.1 Vegetation 9
3.8.2 Food Production 9

4.0 IMPLEMENTATION 10

5.0 CONCLUSION 10

APPENDIX A
ARCHITECTURAL PLANS 11

APPENDIX B
BESS ASSESSMENT 19

APPENDIX C
STORM REPORT AND WSUD STRATEGIES 32

APPENDIX D
IMPLEMENTION & COMMISSIONING 37

APPENDIX E
WATER TANKS MAINTENANCE 40

PROPOSED NEW DWELLING
14 THE RIDGE, OAKLANDS JUNCTION

SUSTAINABLE MANAGEMENT PLAN

1.0 INTRODUCTION

The scope of this Sustainable Design Assessment (SDA) is to provide sustainability initiatives and enhance on the proposed design and construction methods intended for the proposed new dwelling at 14 The Ridge, Oaklands Junction.

The environmentally sustainable design principles that are being incorporated into this development are summarised under the following headings:

- Reduction in energy consumption
- Water management
- Stormwater Management
- Construction materials
- Indoor environmental quality
- Waste management
- Management of car and bicycle parking
- Urban Ecology
- Innovation/ESD excellence
- Ongoing building and site management

The project has been assessed using the Built Environment Sustainability Scorecard (BESS) assessment tool.

Architectural drawings prepared by [redacted]dated October 2024 have been used to prepare this report. (Refer to Appendix A)

It is proposed to build a new single storey dwelling constructed on a concrete slab with a mixture of brick veneer and stud framed walls. Internal walls are stud framed. The roof is sealed with a corrugated colourbond roof sheeting.

The total site area is 4333 sqm and is currently vacant.

2.0 BESS ASSESSMENT

A Built Environment Sustainability Design Scorecard (BESS) assessment has been conducted for the proposed development.

This provides a guide as to the level of sustainability achieved by the proposed development.

The BESS Assessment outcomes are attached in Appendix B.

The BESS scores for the development are summarised in the following table:

[redacted]

Element	Score	% of Total
Management	0 %	5 %
Water	72 %	9 %
Energy	81 %	28 %
Stormwater	100 %	14 %
IEQ	60 %	17 %
Transport	100 %	9 %
Waste	50 %	6 %
Urban Ecology	42 %	6 %
Innovation	10 %	9 %
Overall Score	66%	

3.0 ENVIRONMENTALLY SUSTAINABLE DESIGN INITIATIVES

3.1 BUILDING ENERGY USE

3.1.1 BUILDING DESIGN FEATURES

Energy Rating Assessment

The dwelling will achieve a minimum energy efficiency rating of 7.0 stars NatHERS rating. The following BCA 2022 heating and cooling load limits will also apply for the development: heating load limit of 95 MJ/m^2 and cooling load limit of 27 MJ/m^2.

Air Building Leakage

To stop conditioned air leaking out all gaps around windows, entry doors and pipe penetrations will be made airtight by caulking. External doors will also be fitted with a draught excluder (attached to the bottom of the door) and weather strips between the frame and the door.

Window Glazing

All windows will be fitted with aluminium frames. Windows and glazed doors in Living areas and Bedrooms will be fitted with clear double glazed panels (Uw 3.9 and SHGC 0.58). This will help maintain the internal temperature by reducing direct heat gains in summer from the sun and internal heat loss in winter.

Insulation

Added insulation will be installed to achieve the required thermal performance for the development.

Self-Closing Exhaust Fans

To prevent heat loss exhaust fans in bathrooms will be fitted with adjustable louvers that seal shut when the fans are not in use.

Clothes Drying
A clothes drying line will be provided in the private open space of the new dwelling.

Solar Photovoltaic System
Alternative energy source Solar PV panel system with a 3.0 KW total capacity will be installed to supply power to the new dwelling. The system is predicted to result in equivalent avoided greenhouse emissions of approximately 0.96 tonnes CO2 each year.

3.1.2 HEATING, COOLING AND VENTILATION

Ventilation
Sliding external glazed doors to living areas will introduce fresh air and provide cross flow natural ventilation to each unit.

Heating System
Reverse cycle A/C units will provide heating and cooling. Air conditioning systems installed in the project will be selected with a minimum 5 star energy efficiency rating. To increase efficiency, air conditioners will also be thermostatically controlled.

Hot Water Service
Hot water will be provided by an electric heat pump HW unit. The hot water unit will be located centrally to ensure pipe runs are short to all outlets and water wastage is minimised when hot water taps are first turned on.

3.1.3 ARTIFICIAL LIGHTING

Natural Lighting
The dwelling has been designed with clear glazed windows that face out to capture natural light and reduce reliance on artificial lighting. A glazing system with visible light transmittance of not less than 75% shall be selected

The internal walls and ceilings will be finished with light colours to reflect light and also reduce the need for artificial lighting.

Artificial Lighting
LED light globes will be used to provide artificial lighting and shall be designed to achieve a max illumination power density of 4W/sqm or less and therefore will achieve a maximum illumination power density of 20% lower than the NCC requirements.

A lighting system comprising of LED light globes which are activated by motion sensors shall be designed for all external areas. The development is to incorporate high efficiency light fittings coupled with time switches and motion sensors where applicable, to ensure that lighting energy consumed is minimised.

3.1.4 APPLIANCES

The dwelling will be fitted with water efficient 4 Star WELS rated dishwashers.

3P1.5 Electricity Metering
The dwelling will be fitted with a separate electricity meter.

3.2 WATER CONSERVATION AND RE-USE

3.2.1 Rainwater Tank

A rainwater harvesting system will collect surfaces rainwater from the dwelling's roof and divert it to two above ground 71,097L rainwater storage tanks (142,194L).

130,194L of tank Water will be used to supply potable water to the residence and 12,000L will be reticulated to all toilets and the washing machine. Tank water will also be used for the irrigation of a min. 50 sqm of garden areas.

Stormwater pipes will be installed by a licensed plumber in accordance with *Plumbing Regulations 2018*, Roofing (stormwater). A suitably qualified Civil Engineer shall be appointed to design the stormwater system and confirm the PSD and OSD requirements for this site.

The connection of downpipes into the tank will be via a first flush diverter. First flush diverter will provide first point of stormwater pollution treatment.

3.2.2 STORM Score Occupancy Calculation

The size of the rainwater tank(s) is based upon the amount of water re-used. The STORM calculator assumes the tank is connected to the toilets with a water use rate of 20 litres per bedroom per day. For residential properties the number of bedrooms is used as an indicative estimation for the number of people who will be using tank water.

The number of occupants/bedrooms has been calculated as follows:

- Toilet flushing
  Bedroom = 20L/day
- Washing machines
  Two washes per week (Assumed 4 WELS rated washing machines are used) x 70L/wash = 140L/week i.e equivalent 20L/day or one additional bedroom

Therefore, the STORM Tool calculation has allocated 6 bedrooms for the dwelling as the tank water demand. Refer to Appendix C.

It should also be noted that the total combined water demand estimated does not consider the fact that tank water will also be used for garden irrigation and is therefore considered conservative.

3.2.2 Water Efficient Fittings

The following water efficient fittings will be used throughout:

- Toilets minimum 4 stars WELS rated
- Taps minimum 5 stars WELS rated
- Showers minimum 3 stars WELS rated (>=7.5 L/minute but <=9.0L/minute)
- Dishwasher minimum 4 stars WELS rated

3.2.3 Water Metering

The new dwelling will have a separate water meter installed.

3.3 STORMWATER MANAGEMENT

3.3.1 Stormwater Quality

This residential development achieves a STORM (Quality) score of 101%.

The proposed WSUD strategy for this site is to use permeable paving, three above ground rainwater gardens (each measuring 4 sqm) and a rainwater harvesting system which will collect roof surfaces rainwater from the roof and divert it to an above ground rainwater storage tank. Tank water will be reticulated to all toilets and the washing machine and used for garden irrigation.

The development is therefore deemed to have achieved the intent of the best practice standard for urban stormwater and to meet the objectives of the Hume City Council's Water Sensitive Urban Design Policy.

Stormwater quality will also be improved on this site by the use of native vegetation for the landscaping of the outdoor area.

Vegetation selection is important and will be selected from suitable plants which have good root absorbance and can withstand long dry periods.

3.3.2 Stormwater Treatment

During the construction stage, measures will be put in place to minimise the likelihood of contaminating stormwater. This will include the installation of buffer strips around stormwater pits and ensuring that the site is kept clean from any loose rubbish at all times.

The builder shall follow the guidelines outlined in the "Keeping Our Stormwater Clean – A Builder's Guide" by Melbourne Water.

Keeping our stormwater clean guide can be downloaded from the following site: http://www.melbournewater.com.au/content/library/rivers_and_creeks/keeping_our Stormwater clean-a_builders_guide.pdf

3.4 CAR AND BICYCLE PARKING

3.4.1 Car parking

The new dwelling will be provided with 3 roofed car parking spaces.

3.4.2 Cyclist Facilities

A wall mounted bicycle rack will be provided in the dwelling's garage.

3.4.3 Electric vehicles charge point

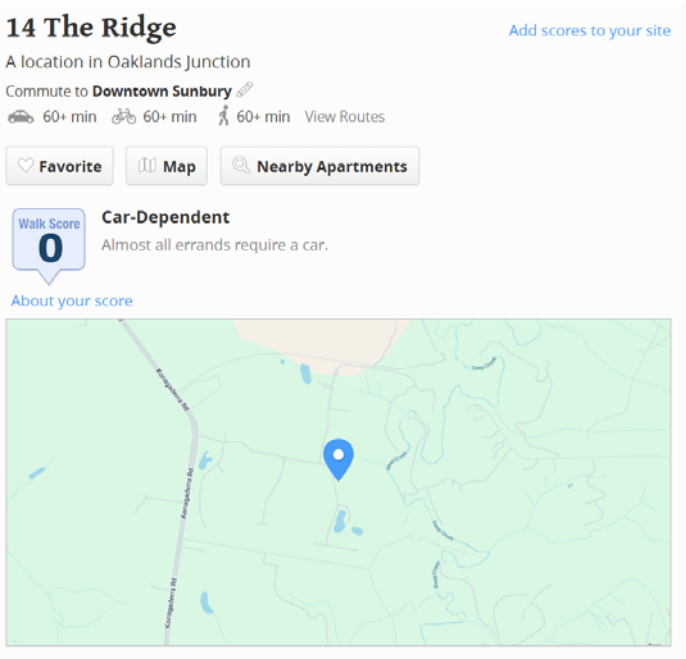
The electricity supply conduit to the garage of the new dwelling will be upgraded to allow for the fitting of an electric motor car power point for the charging of electrical vehicles.

The level and amperage of the electrical vehicle charging point to be provided shall be 15 Amp minimum.

3.4.4 Walkability and Public Transport Access

This site has a "walk score" of 0 out of a possible 100 points.

The site has been classified as "Car Dependent". A site where most errands require a car.



3.5 WASTE MANAGEMENT

3.5.1 Prefabrication and Pre-manufactured sizes

Pre-fabrication and pre-manufacturing of building elements such as joinery units and roof trusses will reduce the likelihood of waste materials being created on site and minimise the time on site for installation

3.5.2 Waste Generation During Construction Phase

The builder will be contracted to commit to recycling a minimum of 70% of construction and demolition waste generated on site.

This commitment will be monitored during the contract management stage to ensure that recycling rates are being met throughout the project.

Standard size materials will be specified and prefabricated materials will be used wherever possible to minimise waste generated during the construction phase.

This will reduce the number of off-cuts and wastage left on site. Joinery units, etc. will be manufactured in joinery shops off site where recycling and re-use of materials is more achieved.

3.5.3 Materials Storage and Handling

On site construction personnel will be made aware of the proper way to handle and store materials to reduce the amount of wastage created on site due to mishandling, or damage due to weather or vandalism.

3.5.4 Waste Storage and Handling

The dwelling shall be furnished with two plastic lined under bench storage bins, each with a minimum capacity of 15 litres, for the temporary holding of garbage and recyclable waste.

A FOGO bin, a recycling bin and a general waste bin will be stored on site. The bin storage area will be maintained by the owner/occupier. This will include regular wash-down of bins to deter any vermin and to keep odours from developing.

Wash-down will be undertaken with water from the rainwater tank where possible.

3.6 BUILDING MATERIALS

3.6.1 Transport Energy
Fifty percent (50 %) of materials and products will be used in this development will be locally made.

This will apply to the bulk of materials used for the construction of this building, namely concrete, timber, steel, windows and glass.

3.6.2 Roof
The roof is sealed with corrugated colourbond roof. Roof sheets are extremely long lasting and have low maintenance requirements.

3.6.3 Walls
Walls are proposed to be a mixture of brick veneer and stud framed walls. Internal walls are to be timber framed light weight construction. These framing materials will be primarily selected from the Moreland Green list to reduce the impact of the construction on the natural environment.

3.6.4 Concrete
In-situ concrete used throughout the project will incorporate recycled aggregate and recycled industrial waste to a level acceptable to the structural engineer.

3.6.5 Timber
All timber used in the project will be from accredited sustainably harvested plantation sources (FSC/PEFC certified timbers).

3.6.6 Low VOC building materials
All interior paints, flooring adhesives and sealants will be low VOC type. Interior finishes will be selected from the Moreland Green list.

3.6.7 Durability
Products with longer than one year warranty period will be selected where practical.

3.7 INDOOR ENVIRONMENTAL QUALITY

3.7.1 Indoor Air Quality
The following strategies have been implemented to improve indoor air quality:

- All bedrooms are designed with clear windows that face out to capture natural light and reduce reliance on artificial lighting
- Paints, sealants, adhesives & carpets will all be selected to minimise Volatile Organic Compounds (VOCs) off-gassing.
- Engineered wood products will be specified with low formaldehyde content
- External sliding doors to living areas and the layout of the dwelling have ensured adequate cross ventilation
- Extraction fans are provided in all bathrooms to ensure that they are well ventilated

3.7.2 Noise
External noise will be kept low through the installation of good quality acoustically sealed mechanical equipment.

3.8 URBAN ECOLOGY

3.8.1 Vegetation
Native and hardy exotic plants will be used for the landscaping of the outdoor area. 25% of the total area of the site will be covered with vegetation.

Vegetation selection is important and will be selected from suitable plants which have good root absorbance and can withstand long dry periods.

4.0 IMPLEMENTATION

An environmentally and economically sustainable development will be achieved by the appropriate implementation, management, monitoring and maintenance of the initiatives outlined within this Sustainable Design Assessment.

Refer to Appendix E for the Implementation and Commissioning Schedule.

5.0 CONCLUSION

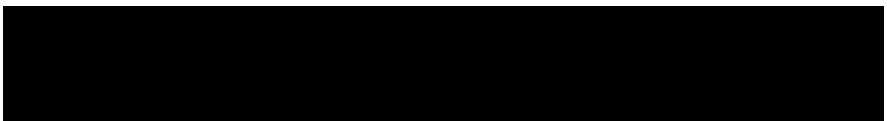
The Sustainable Design Assessment (SDA) addresses a number of sustainable design features, which are integrated into the design of this development, in order to improve the environmental impact of this proposal.

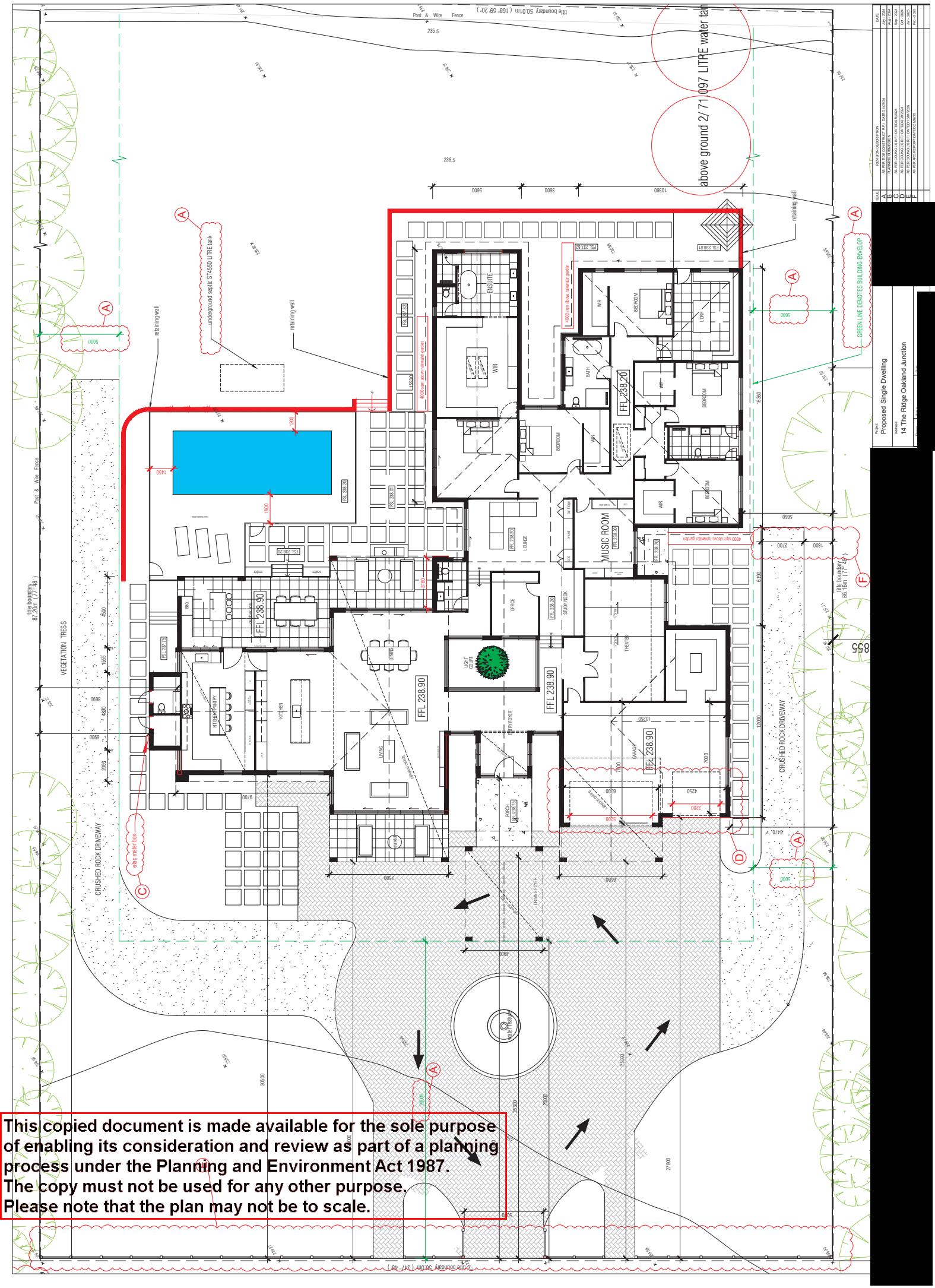
The analysis presented in this report demonstrates that this proposed development meets the energy, water, stormwater quality and materials standards of the SDA assessment tools.

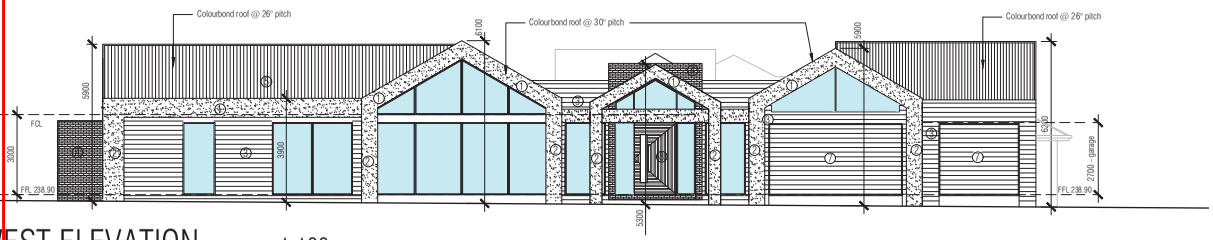
The development also achieves the best practice standard from urban stormwater quality and therefore meets the objectives of the Hume Council's Water Sensitive Urban Design.

Consequently, the sustainable design outcomes for this development are considered adequate for a development of this scale.

APPENDIX - A ARCHITECTURAL PLANS

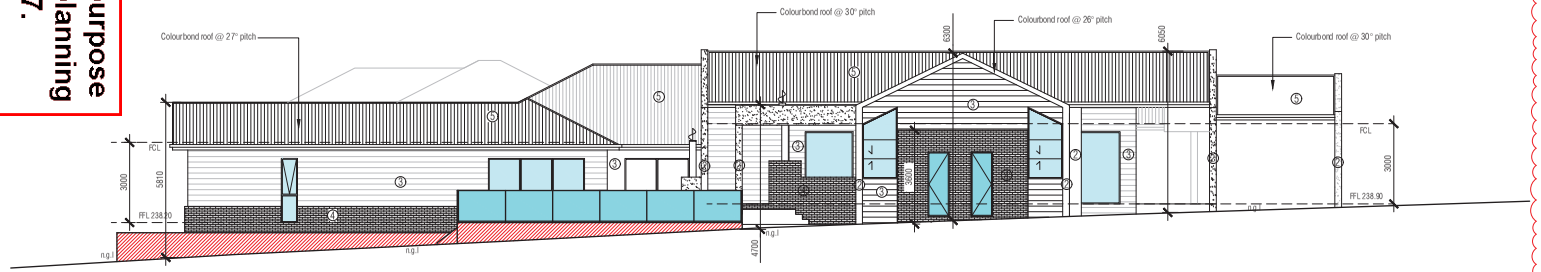




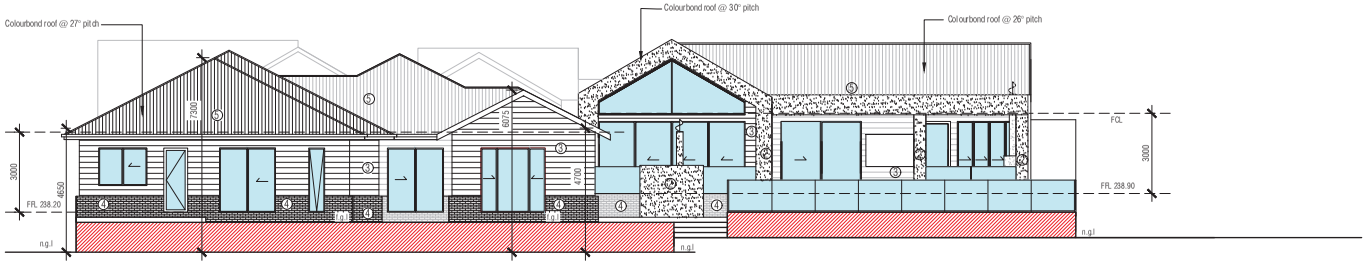


WEST ELEVATION 1:100

SOUTH ELEVATION 1:100



NORTH ELEVATION 1:100



EAST ELEVATION 1:100

- COLOURBOND ROOF AT 30° PITCH

- CAVITY FLASHING AND WEEP HOLES TO PERIMETER OF BUILDING BELOW FLOOR LEVEL @ EVERY 4th PERPEND AND ABOVE ALL OPENINGS @ EVERY 2nd PERPEND.

HATCHED AREA DENOTES PROPOSED CONCRETE BLOCKS RETAINING SLEEPERS

Materials Schedule

Description	Colour
1. Canopies & Gables Compressed Cement Sheets Rendered - White By Dulux	
2. Piers Bricks Rendered - White By Dulux	
3. Walls James Hardie - Linea TM Weatherboards Painted - Colour - White By Dulux	
4. Walls Facebrick Colour - White by hume bricks	
5. Roof - Colourbond Flashing, Fascia & Gutter Colour - Bluegum	
6. Windows & Doors Aluminium - Powder coated Colour - Bluegum	
7. Flush Mount Garage Doors Sectional - Timber Horizontal cladding Colour - White	
8. Entry Door - Solid Timber Timber Vertical batten cladding Colour - White	
9. Driveway - Concrete Exposed Aggregate Charcoal	

Environmentally Sustainable Development Initiative

- WATER
- The following water efficient fittings will be used throughout:
- Toilets minimum 4 stars WELS rated
- Taps minimum 5 stars WELS rated
- Showers minimum 4 stars WELS rated (> =6.0L/minute but < =7.5L/minute)
- A dishwasher with a minimum 4 stars WELS rated will be provided in each unit
- Suitable plants which can withstand long dry periods will be used

- ENERGY
- The dwelling will achieve a minimum average energy efficiency rating of 7.0 stars
- Reverse cycle air conditioning units will provide heating and cooling. Air conditioning systems
- installed in the project will be selected with a minimum 5 star energy efficiency rating.
- Hot water will be provided by an electric heat pump HW unit
- Internal walls and ceilings will be finished with light colours
- LED bulbs will be used to provide artificial lighting. Development will achieve a max illumination
- power density of 4W/sqm or less and therefore will achieve a maximum illumination power
- density of 20% lower than the NCC requirements
- External lighting will be controlled by motion detectors
- A clothes drying line will be provided in each unit private open space.

STORMWATER
- A rainwater harvesting system will collect roof surfaces rainwater and divert it to an above ground 12,000 litres rainwater storage tank. Tank Water will be reticulated to all toilets, washing machine and used for garden irrigation
- Pervious paving will be used for the driveway and the footpaths in the landscaped garden
- Three above ground rainwater gardens with a total area of 12 sqm (RG1 - 4 sqm, RG2 – 4 sqm & RG3 - 4 sqm) will be installed to collect surface rainwater from 310 sqm of the roof
- Rainwater will be collected from the roof and discharged as shown on the WSUD Strategies Plan which is attached in Appendix C of SDA report

IEQ
- Windows and glazed doors in Living areas and Bedrooms will be fitted with double glazed glass panels (Uw 3.9 and SHGC 0.58)

TRANSPORT
- A wall mounted bicycle rack will be provided in the garage
- The electricity supply conduit to the garage will be upgraded to allow for the fitting of an electric motor car power point for the charging of electrical vehicles. The level and amperage of the electrical vehicle charging point to be provided shall be 32 amp minimum

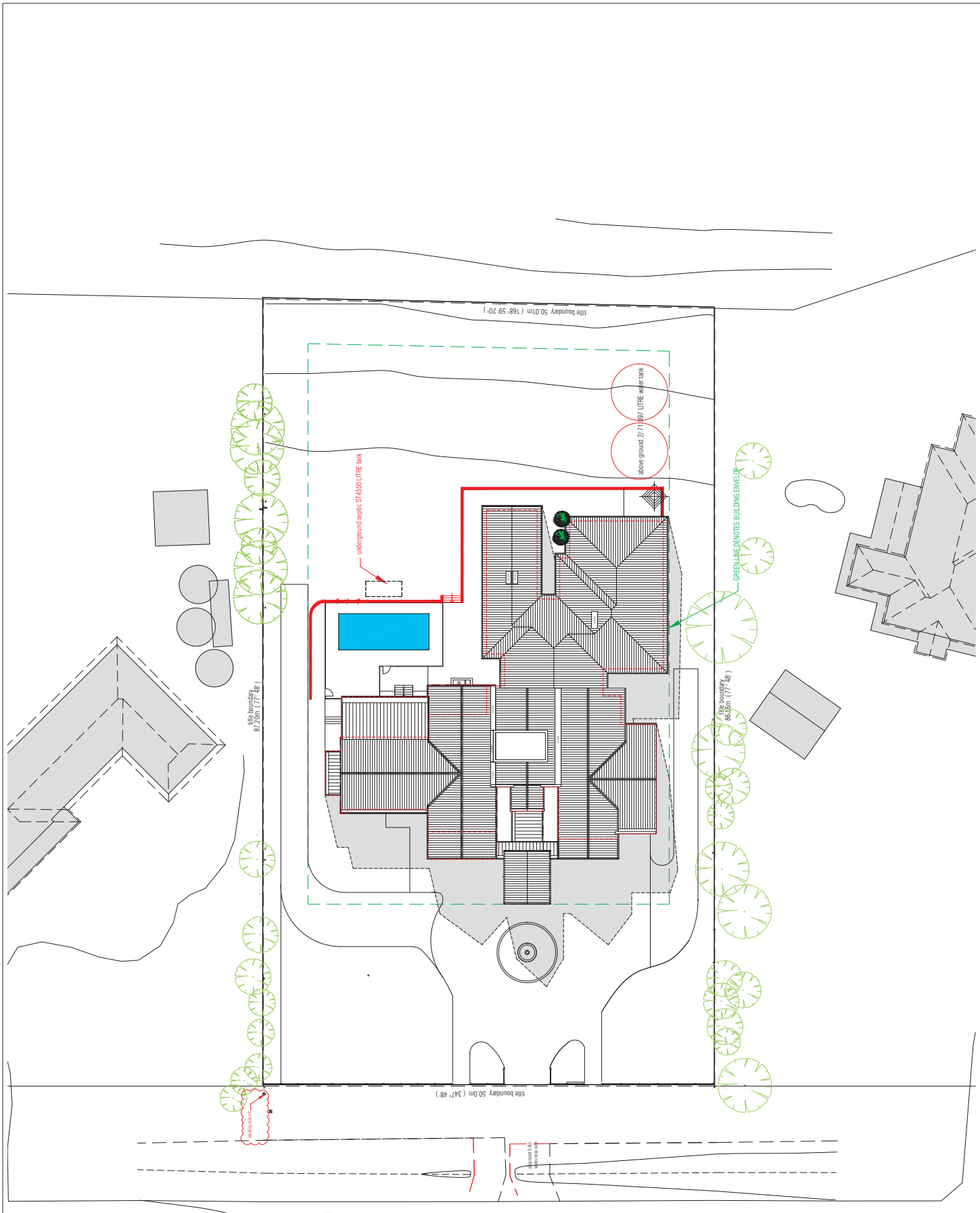
WASTE
- Recycling, FOGO, glass and general waste bins for council pickup will be stored on site BUILDING MATERIALS
- The builder will be contracted to commit to recycling a minimum of 70% of construction and demolition waste generated on site.
- In-situ concrete used throughout the project will incorporate recycled aggregate and recycled industrial waste to a level acceptable to the structural engineer
- All timber used in the project will be from accredited sustainably harvested plantation sources (FSC/PEFC certified timbers)
- All adhesives and sealants will be low VOC type

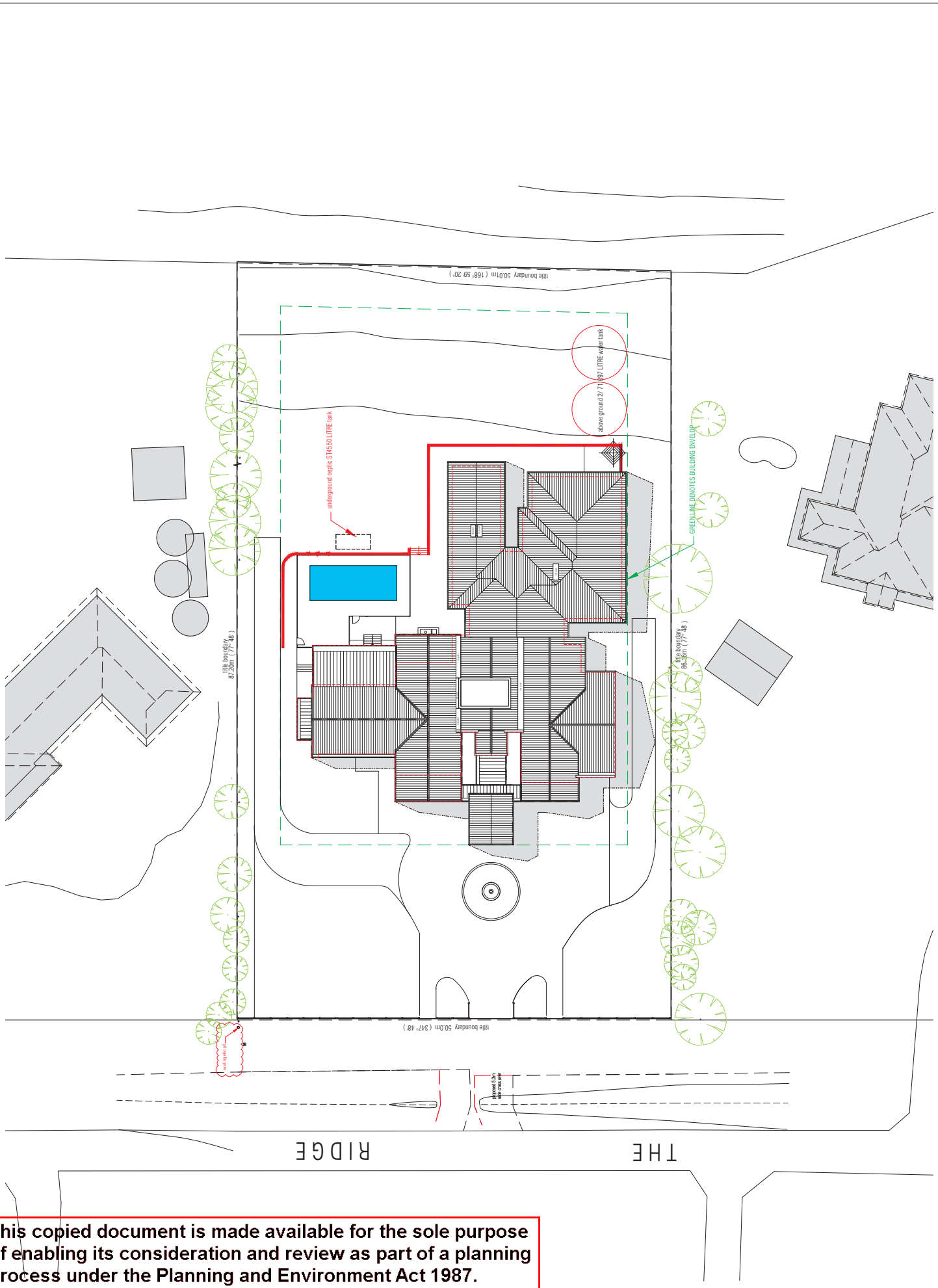
URBAN ECOLOGY
- 25% of the total area of the site will be covered with vegetation a

Project: Proposed Single Dwelling

Address: 14 The Ridge Oakland Junction

ISSUE	REVISION DESCRIPTION	DATE
A	AS PER TIDE CONSTRUCT R.F.I DATED 4.07/24	July - 2024
B	PLANNING SUBMISSION	Aug - 2024
C	AS PER COUNCILS R.F.I DATED 9.9/2024	Sep - 2024
D	AS PER COUNCILS R.F.I DATED 3.09/2024	Oct - 2024
E	AS PER COUNCILS R.F.I DATED 1.5/01/2025	Jan - 2025
F	AS PER ARC REPORT DATED 2.16/2/25	Feb - 2.025

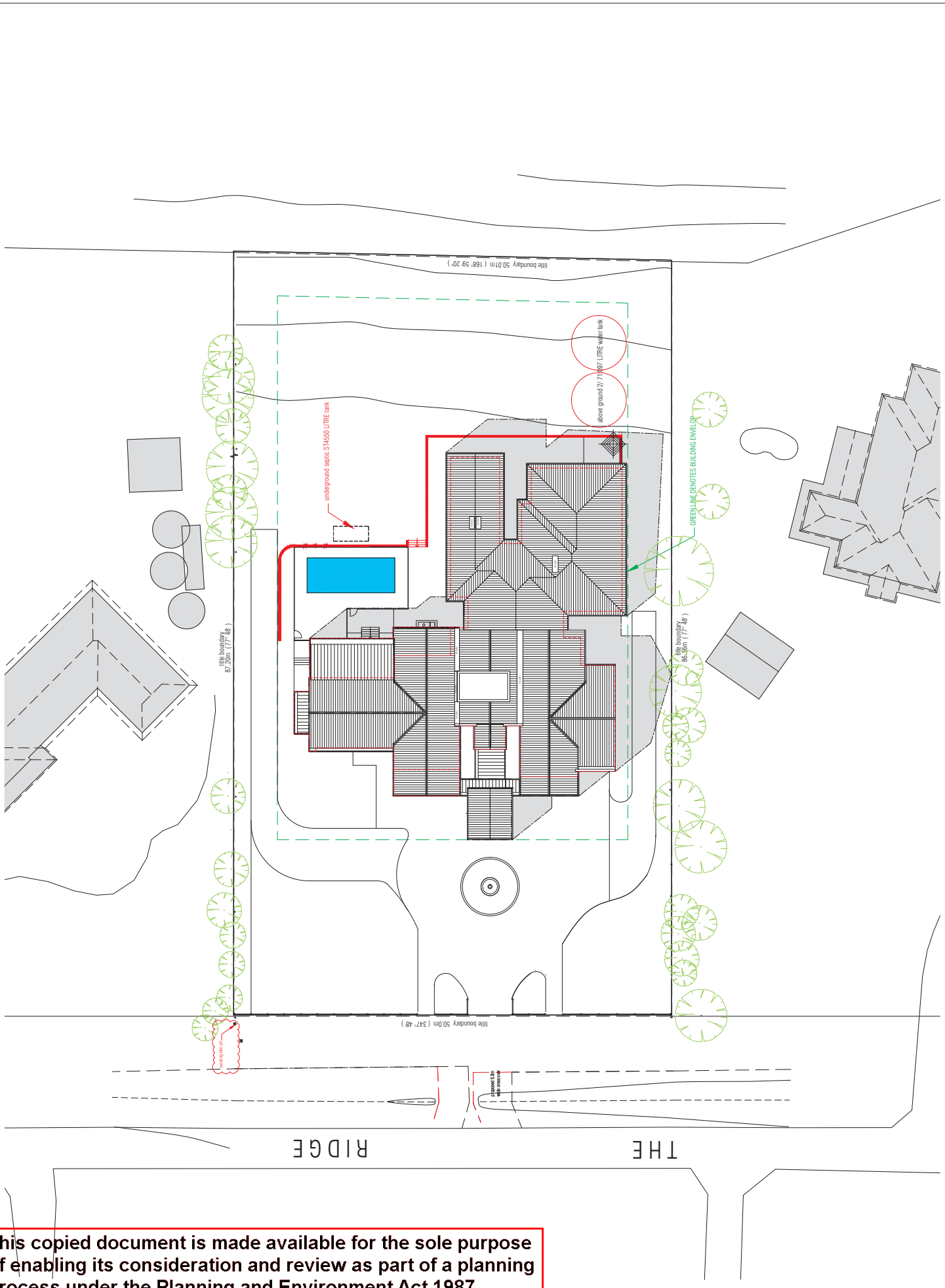




ISSUE	REVISION DESCRIPTION	DATE
A	AS PER TOS CONSTRUCT REF.1 DATED 4.07.04	July - 2004
B	AS PER COUNCILS REF.1 DATED 8.08.04	Aug - 2004
C	AS PER COUNCILS REF.1 DATED 8.09.04	Sept - 2004
D	AS PER COUNCILS REF.1 DATED 03.09.2004	Oct - 2004
E	AS PER COUNCILS REF.1 DATED 13.01.2005	Jan - 2005
F	AS BUILT AMD REPORT DATED 7.09.2005	Feb - 2006

Project: Proposed Single Dwelling

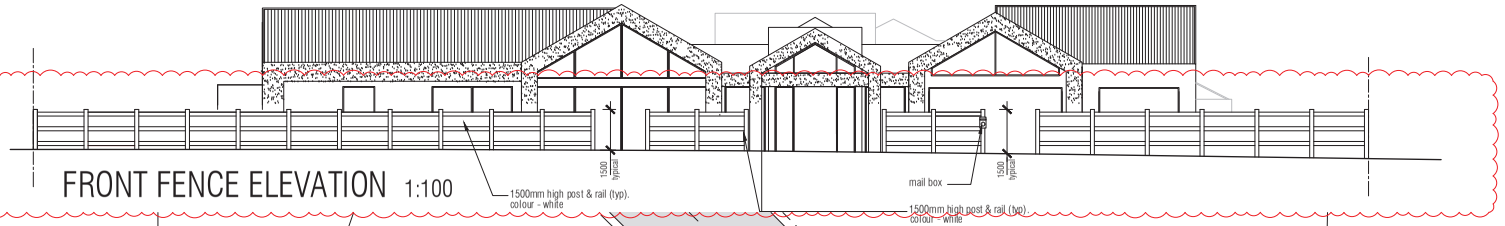
Address: 14 The Ridge Oakland Junction



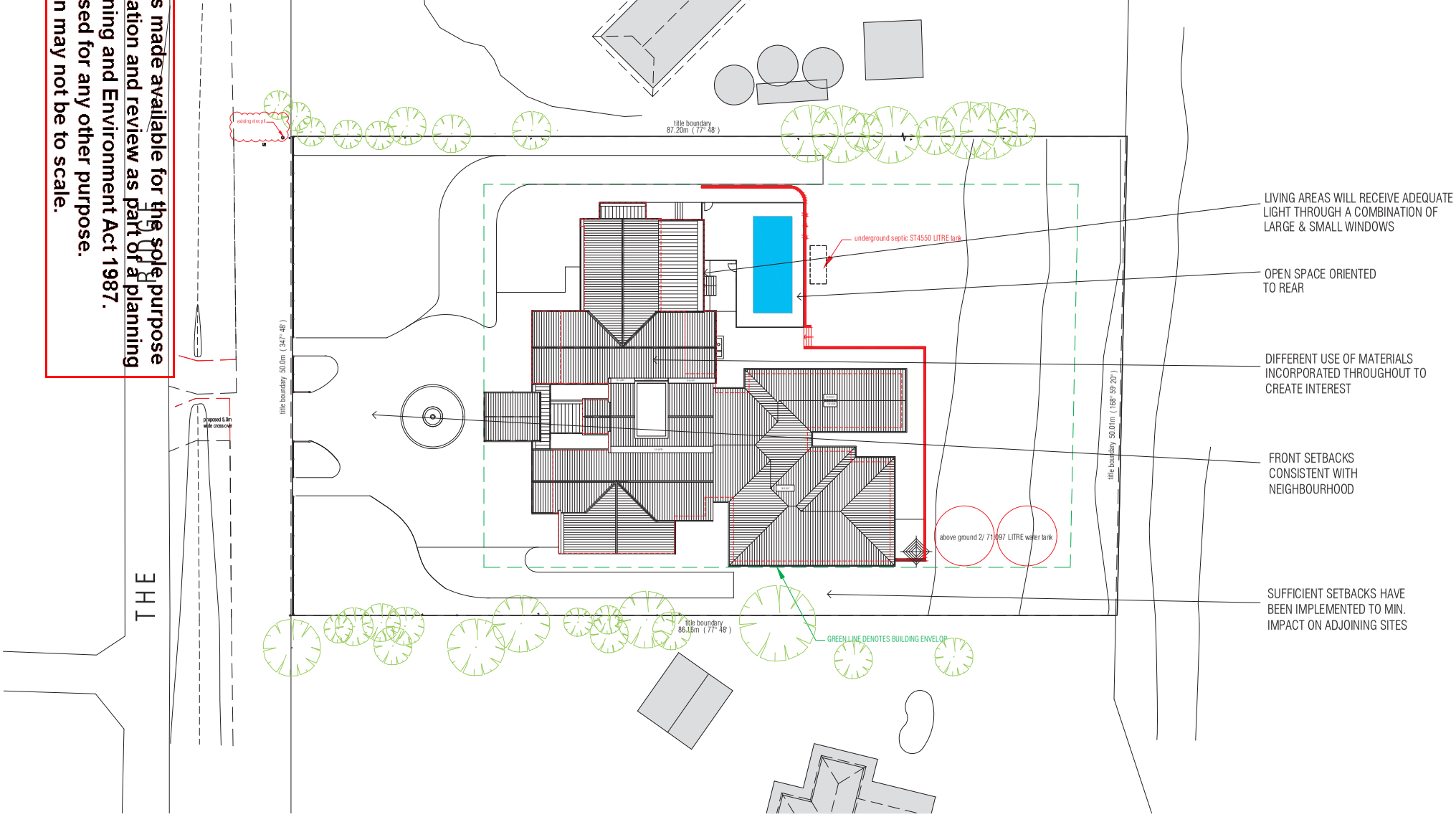
ISSUE	REVISION DESCRIPTION	DATE
A	AS PER TFDS CONSTRUCT REF.1 DATED 4.07.24	July - 2024
B	AS PER COUNCILS REF.1 DATED 8.8.2024	Aug - 2024
C	AS PER COUNCILS R.F.I DATED 8/9/2024	Sept - 2024
D	AS PER COUNCILS R.F.I DATED 03/09/2024	Oct - 2024
E	AS PER COUNCILS R.F.I DATED 19/01/2025	Jan - 2025
F	AS PER ARCHITRAVE REPORT DATED 21.02.2025	Feb - 2025

Project
Proposed Single Dwelling

Address
14 The Ridge Oakland Junction



FRONT FENCE ELEVATION 1:100

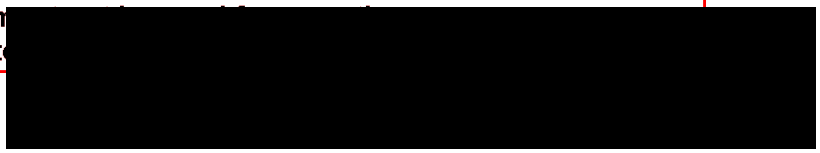


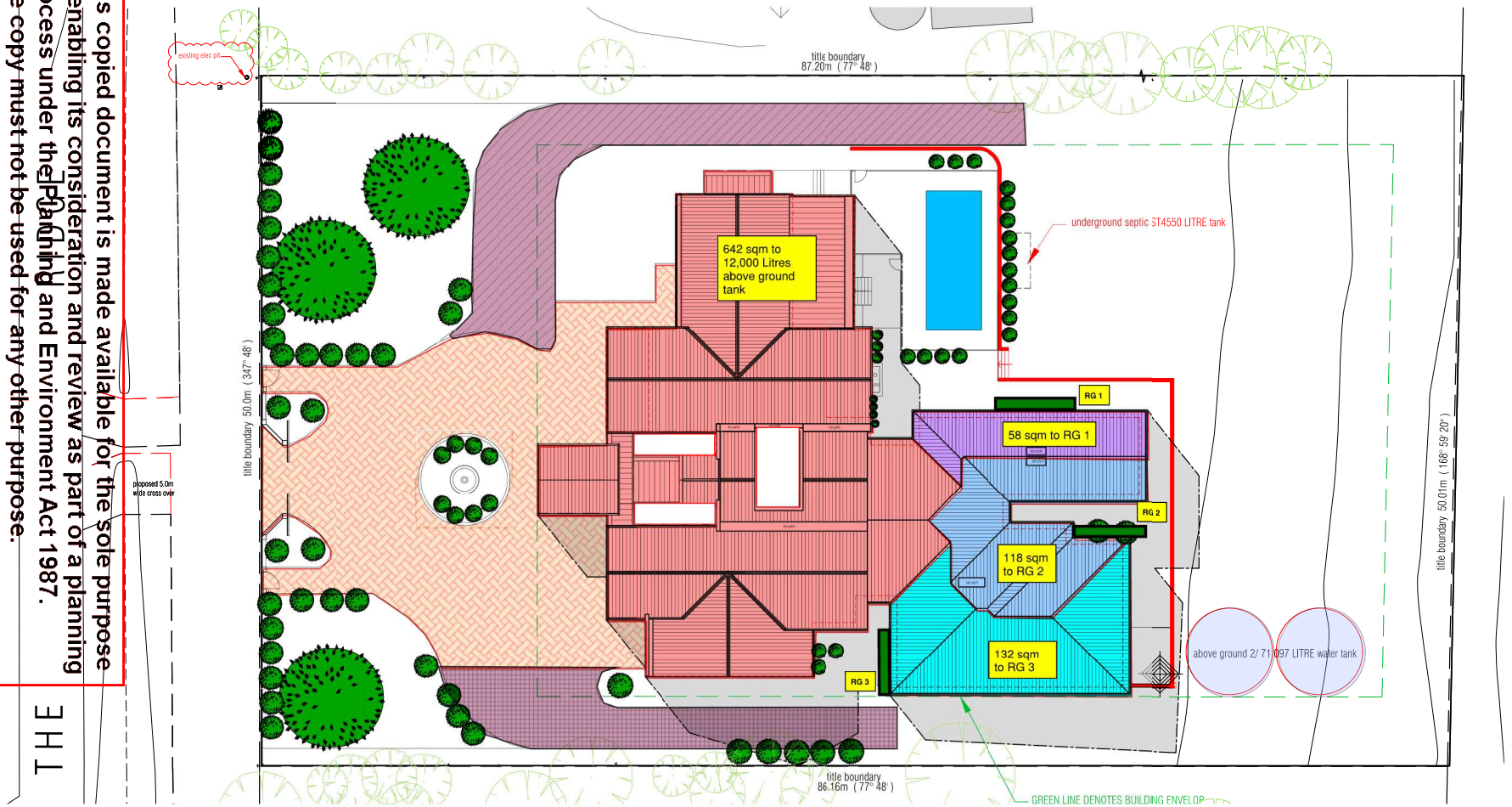
Project
Proposed Single Dwelling

Address
14 The Ridge Oakland Junction

ISSUE	REVISION DESCRIPTION	DATE
A	AS PER TIDE CONSTRUCT R.F.I DATED 4.07/24	July - 2024
B	PLANNING SUBMISSION	Aug - 2024
C	AS PER COUNCIL'S R.F.I DATED 9.8/2024	Sep - 2024
D	AS PER COUNCIL'S R.F.I DATED 3.09/2024	Oct - 2024
E	AS PER COUNCIL'S R.F.I DATED 1.50/12025	Jan - 2025
F	AS PER ARC REPORT DATED 2.162/25	Feb - 2.025

APPENDIX - C STORM REPORT, AND WSUD STRATEGIES





The swimming pool and immediate surrounding has been discounted from the stormwater calculation as any pool overflow and rainwater shed from this area will not contribute to stormwater. Overflow will be directed to the sewer network due to high concentrations of pollutants such as chlorine.

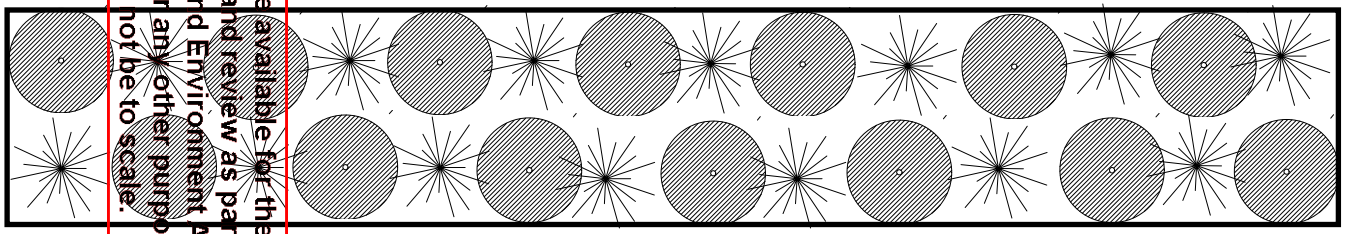
LEGEND

- Roof draining into two above ground 71,097L tanks. 12,000L is reticulated to toilets and the washing machine
- Roof draining to rainwater garden 1
- Roof draining to rainwater garden 2
- Roof draining to rainwater garden 3
- Permeable driveway pavers such as HydroSton pavers or similar
- Permeable crushed rock paving
- Above ground rainwater gardens 4 sqm each

AREA ANALYSIS

Site area	4,333.94 sqm
Roof area to tank	952 sqm
Permeable driveway	462 sqm
Permeable crushed rock paving	322 sqm

WSUD STRATEGIES
14 The Ridge, Oaklands Junction



RAINGARDEN PLAN VIEW
(5.0m x 0.8m)

PLANT SCHEDULE

Dianella longifolia
Planting at spacings 500mm max.

Carex apressa
Planting at spacings 500mm max.

Raingarden Planting Schedule
14 The Ridge,
Oaklands Junction

Construction

While easy to construct, HydroSTON pavements must be fine draining and structurally stable. This requires creation of voids in the pavement substructure and compaction of materials having minimal fines'.

Maintenance

Regular removal of surface debris will maintain the performance of HydroSTON pavements. HydroSTON can be cleaned by brooming and vacuuming with readily available water/suction equipment.

Research

HydroSTON is manufactured in Australia but benefits from extensive research conducted over many years in Germany. Research focuses on hydraulic behaviour, pollutant retention, design, construction and maintenance.

Colours

Charcoal

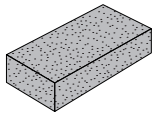
Natural

Other concrete colours can be manufactured during scheduled production runs.

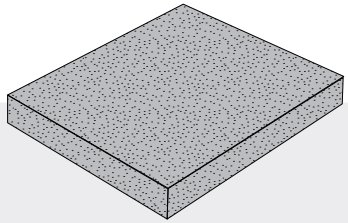
Applications

HydroSTON Pedestrian

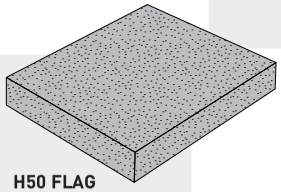
Suitable for footpaths, walkways, plazas, courtyards and tree surrounds.



H50 BLOCK
50 x 200 x 100mm



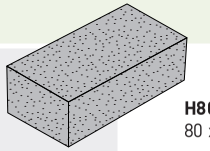
H50 FLAG XL
50 x 400 x 400mm



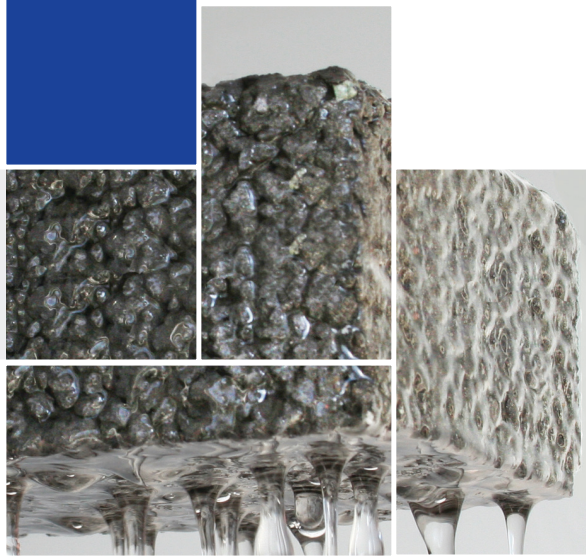
H50 FLAG
50 x 300 x 300mm

HydroSTON Traffic

Suitable for carparks, driveways and minor roads.



H80
80 x 206 x 136mm



HydroSTON
from HydroCon

Permeable Concrete Pavers

HydroCon

HydroCon Australasia Pty Ltd
24-30 Wellington Street
Waterloo NSW 2017
T: 02 8303 2423
E: info@hydrocon.com.au
www.hydroston.com.au

AUSTRALIAN MADE

HydroCon

Managing water in the urban environment

Permeable pavements

The use of concrete, asphalt and other non-porous materials for roads, carparks, footpaths, driveways and many public spaces is having profound effects on the water cycle within the urban environment. It has been calculated that up to 75% of rainfall falling on cities and towns is rapidly directed via stormwater drainage systems to local waterways. Surface water runoff place heavy pressure on existing drainage systems and increases the volume and rate of flow to waterways.

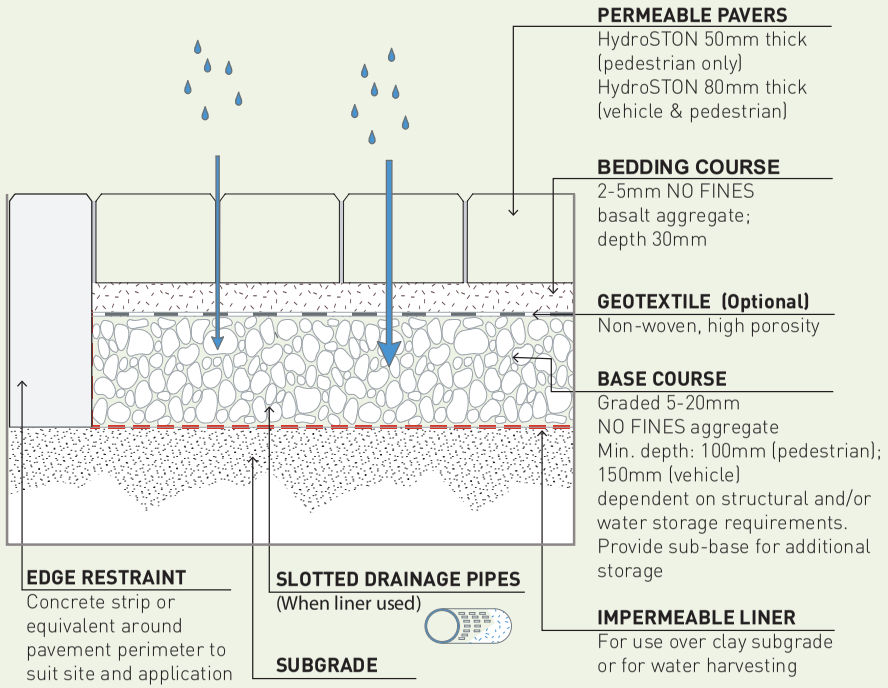
Permeable pavements can help restore the natural water cycle, reduce the impact of development on waterways and improve urban water security.

Permeable pavements offer an environmentally sustainable, cost effective and beneficial long term approach to site and urban drainage.

HydroSTON® permeable concrete pavers

- Are fully permeable, durable and non-slip
- Improve water quality by filtering stormwater runoff at source
- Facilitate on-site water retention and harvesting of stormwater
- Reduce local flooding and surface ponding
- Take pressure off existing stormwater drainage systems
- Assist in replenishing groundwater and aquifers
- Satisfy local government permeable area property ratios
- Increase water supply to trees and landscaped areas
- Allow root aeration
- Improve urban micro-climates

Infiltration through porous paving surface

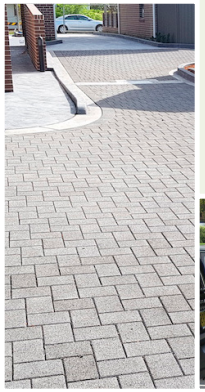


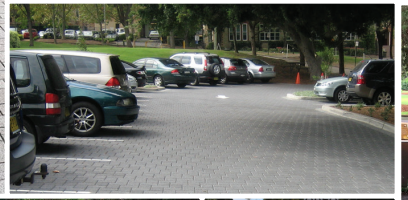
Harvesting and storage

Installation of slotted collection pipes within a HydroSTON pavement allows water to be channeled to existing stormwater systems, waterways or to storage tanks for potential reuse. Placement of a liner around the HydroSTON pavement prevents ground infiltration and overcomes problems associated with clay soils.

Infiltration

HydroSTON allows rain and stormwater to permeate into the ground as occurs naturally in rural and undeveloped environments.
Infiltration 'at source' reduces stormwater runoff, improves water quality, supplements groundwater and lowers temperature in densely settled urban areas.



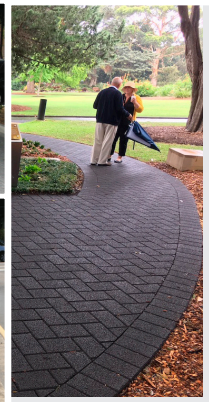


Permeability

HydroSTON pavers are categorised as "free draining" under AS 4456.16 with average rates under laboratory testing of at least 270mm per minute or 4.5 l/sec/m². HydroSTON pavements have very high permeability rates due to 100% permeable surface area. Overall performance of HydroSTON pavements depends not only on infiltration capacity of pavers but also on pavement substructure (and subgrade in the case of infiltration applications).

Water quality

HydroSTON assists in improving water quality by filtering out debris and pollutant laden particles. Pollutants such as heavy metals, hydrocarbons and nutrients (phosphorous) attached to particles are retained in the surface layer of HydroSTON pavements, where they can be flushed out by periodic cleaning.



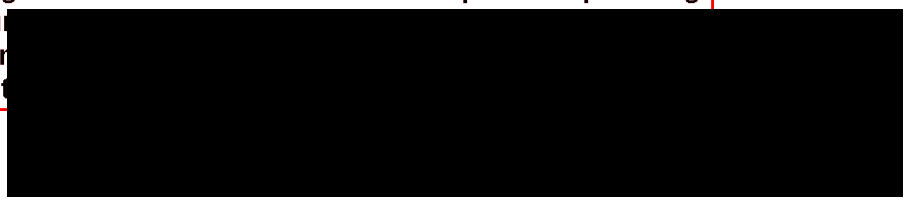
STORM Rating Report

TransactionID:	0
Municipality:	HUME
Rainfall Station:	HUME
Address:	14 The Ridge
	Oakland Junction
	VIC 3063
Assessor:	[redacted]
Development Type:	Residential - Dwelling
Allotment Site (m2):	4,333.94
STORM Rating %:	101

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
Roof to tank	642.00	Rainwater Tank	12,000.00	6	85.60	100.00
Roof RG	310.00	Raingarden 100mm	12.00	0	132.60	0.00

Date Generated: 18-Oct-2024 Program Version: 1.0.0

APPENDIX - B
BESS ASSESSMENT



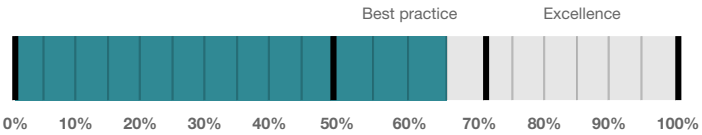
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 14 The Ridge Oaklands Junction Victoria 3063. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Hume City Council.

Note that where a Sustainability Management Plan is required, the BESS report must be accompanied by a report that further demonstrates the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

Your BESS Score



66%

Project details

Address	14 The Ridge Oaklands Junction Victoria 3063
Project no	5BAD2C11-R1
BESS Version	BESS-8
Site type	Single dwelling
Account	[redacted]
Application no.	
Site area	4,333.00 m²
Building floor area	653.00 m²
Date	07 November 2024
Software version	2.0.1-B.570

Performance by category

Dwellings & Non Res Spaces

Dwellings

Name	Quantity	Area	% of total area
Detached dwelling			
Dwelling	1	653 m²	100%
Total	**1**	**653 m²**	**100%**

Supporting information

Floorplans & elevation notes

Credit	Requirement	Response	Status
Water 3.1	Annotation: Water efficient garden details	To be printed Refer to Architectural Plans	✔
Energy 3.3	Annotation: External lighting controlled by motion sensors	To be printed Refer to Architectural Plans	✔
Energy 3.4	Location of clothes line (if proposed)	To be printed Refer to Architectural Plans	✔
Energy 4.5	Location and size of solar photovoltaic system	To be printed Refer to Architectural Plans	✔
Stormwater 1.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)	To be printed Refer to Architectural Plans	✔
IEQ 2.2	Annotation: Dwellings designed for 'natural cross flow ventilation' (If not all dwellings, include a list of compliant dwellings)	To be printed Refer to Architectural Plans	✔
IEQ 3.1	Annotation: Glazing specification (U-value, SHGC)	To be printed Refer to Architectural Plans	✔
Transport 1.1	Location of residential bicycle parking spaces	To be printed Refer to Architectural Plans	✔
Transport 2.1	Location of electric vehicle charging infrastructure	To be printed Refer to Architectural Plans	✔
Waste 2.1	Location of food and garden waste facilities	To be printed Refer to Architectural Plans	✔
Urban Ecology 2.1	Location and size of vegetated areas	To be printed Refer to Architectural Plans	✔

Supporting evidence

Credit	Requirement	Response	Status
Energy 3.5	Average lighting power density and lighting type(s) to be used	To be printed Refer to Architectural Plans Refer to Architectural Plans	✔
Energy 4.5	Specifications of the solar photovoltaic system(s)	To be printed Refer to Architectural Plans Refer to Architectural Plans	✔
Stormwater 1.1	STORM report or MUSIC model	To be printed Refer to SDA Report Refer to SDA Report	✔
IEQ 2.2	A list of dwellings with natural cross flow ventilation	To be printed Refer to Architectural Plans Refer to Architectural Plans	✔
IEQ 3.1	Reference to floor plans or energy modelling showing the glazing specification (U-value and Solar Heat Gain Coefficient, SHGC)	To be printed Refer to Architectural Plans Refer to Architectural Plans	✔

Credit summary

Management Overall contribution 4.5%

	0%
1.1 Pre-Application Meeting	0%
2.1 Thermal Performance Modelling - Single Dwelling	0%

Water Overall contribution 9.0%

	Minimum required 50%	72%	✔ Pass
1.1 Potable Water Use Reduction		67%	
3.1 Water Efficient Landscaping		100%	

Energy Overall contribution 27.5%

	Minimum required 50%	80%	✔ Pass
1.2 Thermal Performance Rating - Residential		0%	✔ Achieved
2.1 Greenhouse Gas Emissions		87%	
2.6 Electrification		100%	
2.7 Energy consumption		100%	
3.3 External Lighting		100%	
3.4 Clothes Drying		100%	
3.5 Internal Lighting - Houses and Townhouses		100%	
4.4 Renewable Energy Systems - Other		N/A	Scoped Out
		No other (non-solar PV) renewable energy is in use.	
4.5 Solar PV - Houses and Townhouses		100%	

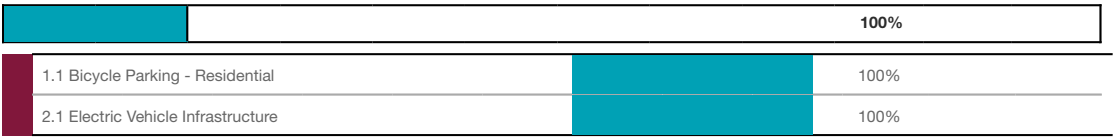
Stormwater Overall contribution 13.5%

	Minimum required 100%	100%	✔ Pass
1.1 Stormwater Treatment		100%	

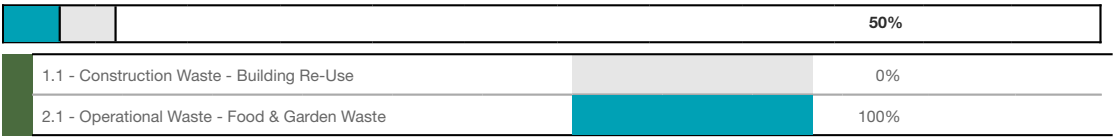
IEQ Overall contribution 16.5%

	Minimum required 50%	60%	✔ Pass
2.2 Cross Flow Ventilation		100%	
3.1 Thermal comfort - Double Glazing		100%	
3.2 Thermal Comfort - External Shading		0%	
3.3 Thermal Comfort - Orientation		0%	

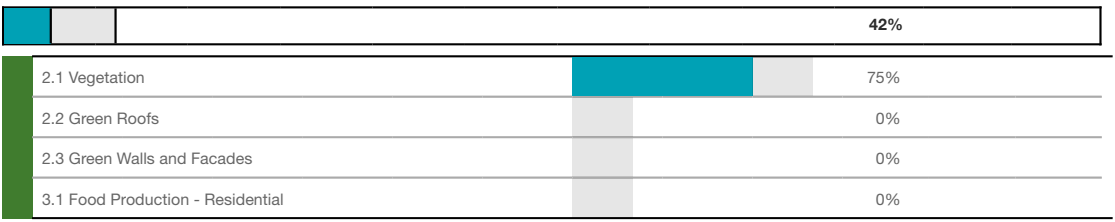
Transport Overall contribution 9.0%



Waste Overall contribution 5.5%



Urban Ecology Overall contribution 5.5%



Innovation Overall contribution 9.0%

Credit breakdown

Management Overall contribution 0%

1.1 Pre-Application Meeting		0%
Score Contribution	This credit contributes 60% towards the category score.	
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?	
Question	Criteria Achieved ?	
Project	No	

2.1 Thermal Performance Modelling - Single Dwelling		0%
Score Contribution	This credit contributes 40% towards the category score.	
Criteria	Has a preliminary NatHERS rating been undertaken?	
Question	Criteria Achieved ?	
Detached dwelling	No	

Water

Overall contribution 7% Minimum required 50%

Water Approach	
What approach do you want to use for Water?:	Use the built in calculation tools
Do you have a reticulated third pipe or an on-site water recycling system?:	No
Are you installing a swimming pool?:	Yes
Are you installing a rainwater tank?:	Yes

Fixtures, fittings & connections profile	
Showerhead:	4 Star WELS (>= 6.0 but <= 7.5)
Bath:	Medium Sized Contemporary Bath
Kitchen Taps:	>= 5 Star WELS rating
Bathroom Taps:	>= 5 Star WELS rating
Dishwashers:	>= 4 Star WELS rating
WC:	>= 4 Star WELS rating
Urinals:	Scope out
Washing Machine Water Efficiency:	Default or unrated
Which non-potable water source is the dwelling/space connected to?:	Tank
Non-potable water source connected to Toilets:	Yes
Non-potable water source connected to Laundry (washing machine):	Yes
Non-potable water source connected to Hot Water System:	No

Rainwater tank profile	
What is the total roof area connected to the rainwater tank?: Tank	642 m²
Tank Size: Tank	12,000 Litres
Irrigation area connected to tank: Tank	50.0 m²
Is connected irrigation area a water efficient garden?: Tank	Yes
Other external water demand connected to tank?: Tank	-

1.1 Potable Water Use Reduction	67%
Score Contribution	This credit contributes 83.3% towards the category score.
Criteria	What is the reduction in total potable water use due to efficient fixtures, appliances, rainwater use and recycled water use? To achieve points in this credit there must be >25% potable water reduction.
Output	Reference
Project	361 kL
Output	Proposed (excluding rainwater and recycled water use)
Project	303 kL
Output	Proposed (including rainwater and recycled water use)
Project	198 kL
Output	% Reduction in Potable Water Consumption
Project	45 %
Output	% of connected demand met by rainwater
Project	100 %
Output	How often does the tank overflow?
Project	Very Often
Output	Opportunity for additional rainwater connection
Project	72 kL

3.1 Water Efficient Landscaping	100%
Score Contribution	This credit contributes 16.7% towards the category score.
Criteria	Will water efficient landscaping be installed?
Question	Criteria Achieved ?
Project	Yes

Energy

Overall contribution 22% Minimum required 50%

Dwellings Energy Approach	
What approach do you want to use for Dwellings?:	Use the built in calculation tools
Are you installing any solar photovoltaic (PV) system(s)?:	Yes
Are you installing any other renewable energy system(s)?:	No
Energy Supply:	All-electric

Dwelling Energy Profile	
Below the floor is:	Ground or Carpark
Above the ceiling is:	Outside
Exposed sides:	4
NatHERS Annual Energy Loads - Heat:	69.0 MJ/sqm
NatHERS Annual Energy Loads - Cool:	17.0 MJ/sqm
NatHERS star rating:	7.0
Type of Heating System:	Reverse cycle ducted
Heating System Efficiency:	5 Stars (2011 MEPS)
Type of Cooling System:	Refrigerative ducted
Cooling System Efficiency:	5 Stars (2011 MEPS)
Type of Hot Water System:	Electric Heat Pump Band 1
% Contribution from solar hot water system:	-
Clothes Line:	Private outdoor clothesline
Clothes Dryer:	No clothes dryer

Solar Photovoltaic system profile	
System Size (lesser of inverter and panel capacity): PV	3.0 kW peak
Orientation (which way is the system facing)?: PV	North
Inclination (angle from horizontal): PV	22.0 Angle (degrees)

1.2 Thermal Performance Rating - Residential 0% ✔ Achieved

Score Contribution	This credit contributes 17.6% towards the category score.
Criteria	What is the average NatHERS rating?
Output	Average NATHERS Rating (Weighted)
Detached dwelling	7.0 Stars

2.1 Greenhouse Gas Emissions 87%

Score Contribution	This credit contributes 17.6% towards the category score.
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?
Output	Reference Building with Reference Services (BCA only)
Detached dwelling	7,269 kg CO2
Output	Proposed Building with Proposed Services (Actual Building)
Detached dwelling	6,003 kg CO2
Output	% Reduction in GHG Emissions
Detached dwelling	17 %

2.6 Electrification		100%	
Score Contribution	This credit contributes 17.6% towards the category score.		
Criteria	Is the development all-electric?		
Question	Criteria Achieved?		
Project	Yes		
2.7 Energy consumption		100%	
Score Contribution	This credit contributes 23.5% towards the category score.		
Criteria	What is the % reduction in annual energy consumption against the benchmark?		
Output	Reference Building with Reference Services (BCA only)		
Detached dwelling	53,239 MJ		
Output	Proposed Building with Proposed Services (Actual Building)		
Detached dwelling	25,425 MJ		
Output	% Reduction in total energy		
Detached dwelling	52 %		
3.3 External Lighting		100%	
Score Contribution	This credit contributes 2.9% towards the category score.		
Criteria	Is the external lighting controlled by a motion detector?		
Question	Criteria Achieved ?		
Detached dwelling	Yes		
3.4 Clothes Drying		100%	
Score Contribution	This credit contributes 5.9% towards the category score.		
Criteria	What is the % reduction in annual energy consumption (gas and electricity) from a combination of clothes lines and efficient driers against the benchmark?		
Output	Reference		
Detached dwelling	907 kWh		
Output	Proposed		
Detached dwelling	181 kWh		
Output	Improvement		
Detached dwelling	80 %		
3.5 Internal Lighting - Houses and Townhouses		100%	
Score Contribution	This credit contributes 2.9% towards the category score.		
Criteria	Does the development achieve a maximum illumination power density of 4W/sqm or less?		
Question	Criteria Achieved?		
Detached dwelling	Yes		
4.4 Renewable Energy Systems - Other		N/A	Scoped Out
Applicant has opted out of providing information for this credit.			

4.5 Solar PV - Houses and Townhouses	100%
Score Contribution	This credit contributes 11.8% towards the category score.
Criteria	What % of the estimated energy consumption of the building class it supplies does the solar power system provide?
Output	Solar Power - Energy Generation per year
Detached dwelling	3,847 kWh
Output	% of Building's Energy
Detached dwelling	54 %

Stormwater

Overall contribution 14% Minimum required 100%

Which stormwater modelling software are you using?:	Melbourne Water STORM tool
1.1 Stormwater Treatment	100%
Score Contribution	This credit contributes 100% towards the category score.
Criteria	Has best practice stormwater management been demonstrated?
Question	STORM score achieved
Project	100
Output	Min STORM Score
Project	100

IEQ Overall contribution 10% Minimum required 50%

2.2 Cross Flow Ventilation	100%
Score Contribution	This credit contributes 20% towards the category score.
Criteria	Are all habitable rooms designed to achieve natural cross flow ventilation?
Question	Criteria Achieved ?
Detached dwelling	Yes

3.1 Thermal comfort - Double Glazing	100%
Score Contribution	This credit contributes 40% towards the category score.
Criteria	Is double glazing (or better) used to all habitable areas?
Question	Criteria Achieved ?
Detached dwelling	Yes

3.2 Thermal Comfort - External Shading	0%
Score Contribution	This credit contributes 20% towards the category score.
Criteria	Is appropriate external shading provided to east, west and north facing glazing?
Question	Criteria Achieved ?
Detached dwelling	No

3.3 Thermal Comfort - Orientation	0%
Score Contribution	This credit contributes 20% towards the category score.
Criteria	Are at least 50% of main living areas orientated to the north?
Question	Criteria Achieved ?
Detached dwelling	No

Transport Overall contribution 9%

1.1 Bicycle Parking - Residential	100%
Score Contribution	This credit contributes 50% towards the category score.
Criteria	How many secure and undercover bicycle spaces are there for residents?
Question	Bicycle Spaces Provided ?
Detached dwelling	1
Output	Min Bicycle Spaces Required
Detached dwelling	1

2.1 Electric Vehicle Infrastructure	100%
Score Contribution	This credit contributes 50% towards the category score.
Criteria	Are facilities provided for the charging of electric vehicles?
Question	Criteria Achieved ?
Project	Yes

Waste Overall contribution 3%

1.1 - Construction Waste - Building Re-Use	0%
Score Contribution	This credit contributes 50% towards the category score.
Criteria	If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used?
Question	Criteria Achieved ?
Project	No

2.1 - Operational Waste - Food & Garden Waste	100%
Score Contribution	This credit contributes 50% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	Yes

Urban Ecology Overall contribution 2%

2.1 Vegetation	75%
Score Contribution	This credit contributes 57.1% towards the category score.
Criteria	How much of the site is covered with vegetation, expressed as a percentage of the total site area?
Question	Percentage Achieved ?
Project	25 %

2.2 Green Roofs	0%
Score Contribution	This credit contributes 14.3% towards the category score.
Criteria	Does the development incorporate a green roof?
Question	Criteria Achieved ?
Project	-

2.3 Green Walls and Facades	0%
Score Contribution	This credit contributes 14.3% towards the category score.
Criteria	Does the development incorporate a green wall or green façade?
Question	Criteria Achieved ?
Project	-

3.1 Food Production - Residential	0%
Score Contribution	This credit contributes 14.3% towards the category score.
Criteria	What area of space per resident is dedicated to food production?
Question	Food Production Area
Detached dwelling	-
Apartment	Food Production Area
Attached dwelling	Food Production Area

Innovation Overall contribution 1%

Innovation		
Description:	Selection of building materials	1.To reduce the embodied energy of materials used for the construction of this buildings. 2.To ensure that the timber products specified for the construction of this building is sourced from renewable resources Refer to the materials section of SDA report These materials commitments are above the best practice sustainability targets of the BESS tool building
Points Targeted:	Selection of building materials	1

1.1 Innovation		10%
Score Contribution	This credit contributes 100% towards the category score.	
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?	

APPENDIX - D
IMPLEMENTION & COMMISSIONING

Implementation & Commissioning Schedule
14 The Ridge, Oaklands Junction

Implementation of the SDA initiatives in this report requires the following process:

- ☐ Full integration with architectural plans & specifications
- ☐ Full integration with building services design drawings & specifications
- ☐ Endorsement of the SDA report with town planning drawings
- ☐ SDA initiatives to be included in plans and specifications for building approval

The following implementation schedule is provided

Actions	Requirements	Responsibility	Date Completed
Nathers Assessments	Nathers assessment	SDA Consultant, Architect	
Window glazing	To be specified according to energy assessment. Double glazing to be provided in Bedrooms and Living areas	Architect, Builder	
Insulation & sealing	To be specified according to energy assessment	Architect, Builder	
Air-Conditioning System	Reverse cycle conditioners shall be minimum 5 star rated for energy efficiency	Services Engineer, Builder	
Lighting	LED bulbs with electric ballasts for all lighting	Architect, Builder	
Motion / time Switch controls	External lighting to be controlled by motion sensors or timers as appropriate	Services Engineer, Builder	
Bike storage	One bicycle parking rack to be installed	Architect, Builder	
Rainwater tank	1200L rainwater tank is specified and installed with plumbing to all toilets and washing machine and used for garden irrigation	Services Engineer, Builder	
Water efficient toilets	Minimum > 4 star WELS toilets are specified	Architect, Builder	
Water efficient taps	Minimum 5 star WELS taps are specified and installed	Architect, Builder	

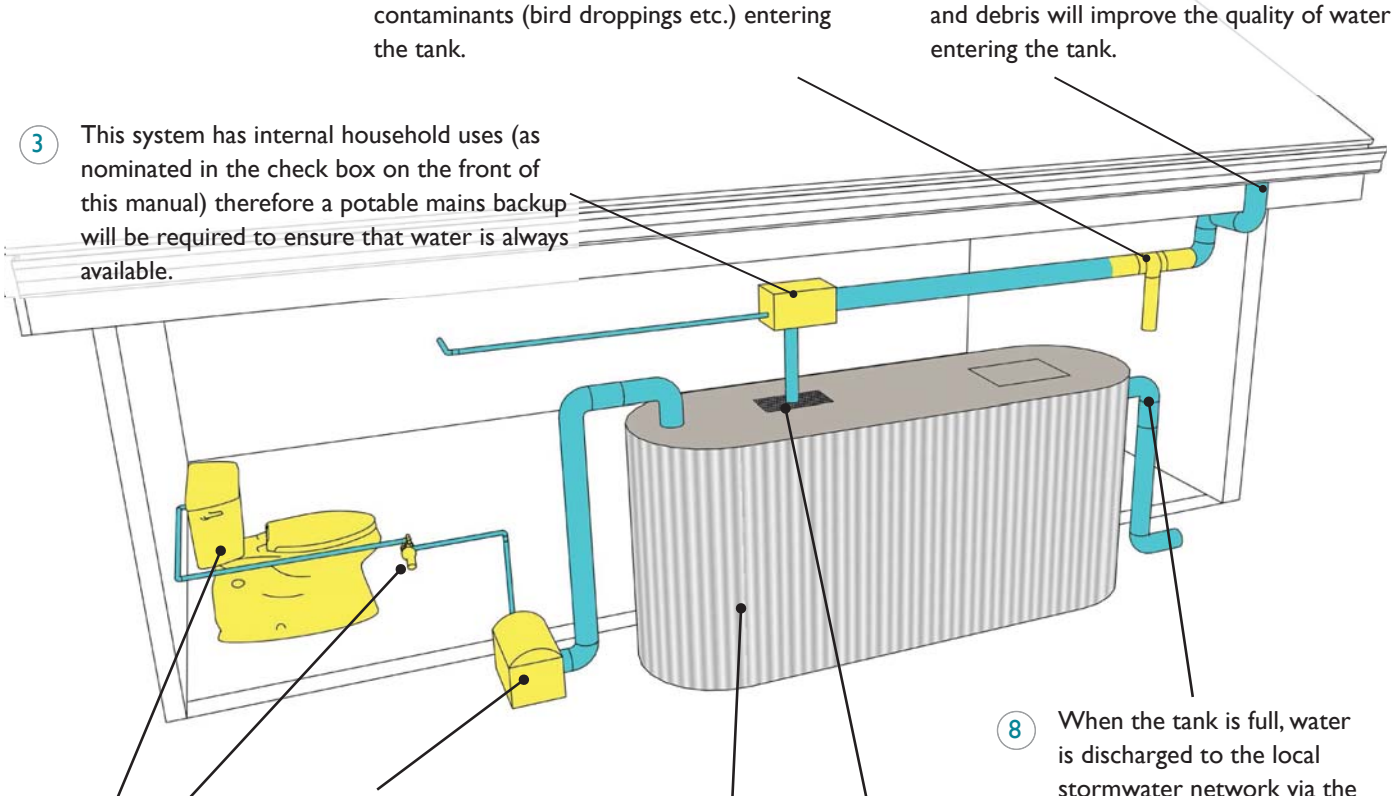
Water efficient showers	Minimum > 3 star WELS showerheads are specified and installed	Architect, Builder	
Water efficient Appliances	Dishwashers with > 4 WELS rating are specified and installed	Architect, Builder	
Concrete	Concrete to incorporate recycled aggregate and recycled industrial waste to level acceptable to the structural engineer	Structural Engineer, Builder	
Timber	All timber to be FSC or PEFC certified	Builder	
Management Plan	Prepare Construction Waste Management Plan to maximize recycling of construction waste (70%)	Builder	
Low VOC paints, sealants & adhesives	Low VOC paints, sealants and adhesives are specified and used	Architect, Builder	

APPENDIX - E
RAIN WATER TANKS

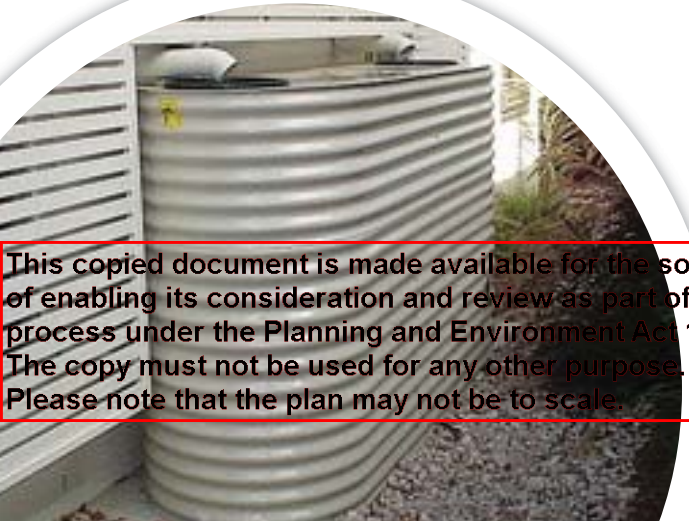
Maintenance Overview

Rainwater Tank Maintenance

The following diagram identifies the key items which are important for rainwater tanks and their maintenance.



1. Rainwater enters the tank from the roof gutters - keeping these clear from leaf litter and debris will improve the quality of water entering the tank.
2. Rainwater passes through a first flush diverter, this device reduces the risk of contaminants (bird droppings etc.) entering the tank.
3. This system has internal household uses (as nominated in the check box on the front of this manual) therefore a potable mains backup will be required to ensure that water is always available.
4. Collected rainwater flows through a protective mesh cover before entering the tank. The mesh filters sediment and debris from the water and keeps mosquitoes and other animals out of the tank.
5. Rainwater is stored in the tank until used.
6. A pump transfers rainwater from the tank into the distribution network.
7. Pipes and taps are used to distribute rainwater for internal (e.g. toilet and laundry) uses and external (e.g. garden).
8. When the tank is full, water is discharged to the local stormwater network via the tank overflow system.



Maintenance Checklist

The property owner is responsible for checking the maintenance items in this checklist at the recommended frequency at the bottom of the table. The maintenance log at the bottom of the page should be filled in once each maintenance check is complete. Upkeep of this maintenance log should continue throughout the life of the rainwater tank.

Item	Rainwater tank element	Inspection item	Y/N	Likely maintenance task
1	Roof gutters and downpipes	Is there leaf litter or debris in the gutters?		Remove by hand and dispose responsibly.
2	First flush diverter	Is there anything blocking the first flush diverter (leaves etc)?		Remove by hand and dispose responsibly.
3	Potable mains back up device	Is the potable mains back up switch operating correctly?		Repair or replace device. Consider a manual switching device.
4	Mesh cover	Has the mesh cover deteroriated or have any holes in it?		Replace mesh cover.
5	Tank volume	Is there large amounts of sediment or debris sitting in the bottom of the tank, reducing the volume available in the tank to store water?		Remove sediment and dispose responsibly.
6	Pump	Is the pump working effectively? Have you heard it on a regular basis?		Check the potable mains back up is not permanently on. Repair or replace pump.
7	Pipes and taps	Are pipes and taps leaking?		Repair as needed.
8	Overflow	Is the overflow clear and connected to the stormwater network?		Remove blockages and/or restore connections to stormwater network.
9	Supporting base	Are there any cracks or movement of pavers?		Empty the tank to reduce weight then repair any damage to the base.

Maintenance frequency

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All tasks	x			x			x			x		

Regular maintenance will improve the water quality and extend the life of your system. A well maintained tank isn't likely to need to be cleaned out for up to ten years (when there is more than 20mm of accumulated sediment).

Maintenance Log

Maintenance date	Maintenance undertaken

Tips for undertaking maintenance

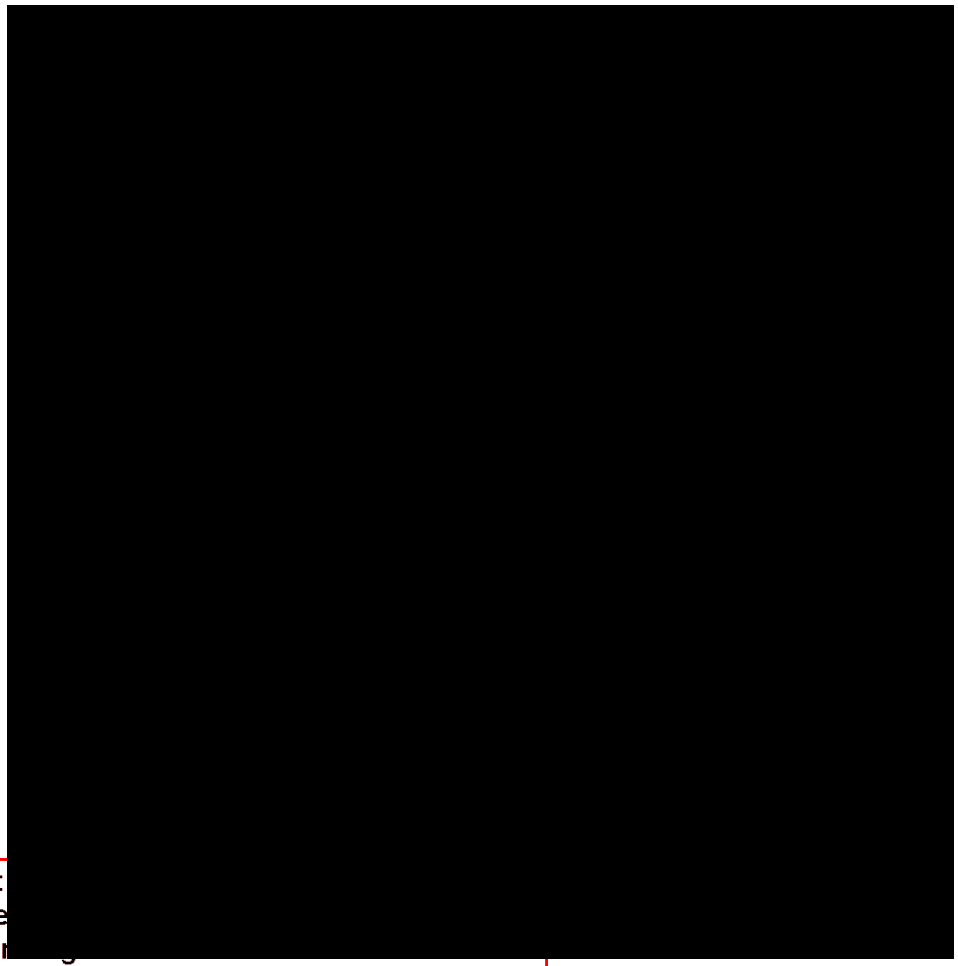
Things to look for and how to fix them.

Leaf litter / debris in gutters	**Pump not working**
Regularly clear your gutters. Make sure you cover the tank inlet if you're rinsing down the gutters to avoid debris entering the tank.	Check operating instructions for your pump. Check that pumps are kept clear of surface water (flooding), vegetation, and have adequate ventilation. Pumps should be serviced every few years to prolong the pump life.
Blocked downpipe	**Mains backup or pump not working**
If you see water spilling from the edge of the gutters check that the downpipe is not blocked, removing any debris.	Have you heard the pump operating? If the mains backup switching device fails many people do not notice for a long time. Consider a manual system if the switching device is problematic and you don't mind operating it manually.
First flush diverter clogging	**Overflow**
To clean out, unscrew the cap at the base of the diverter and remove the filter. Wash the filter with clean water and the flow restrictor inside the cap.	Check that the overflow is not blocked and that there is a clear path for water to safely spill from the tank through the overflow pipe when full. Check that a clean mesh screen is safely in place to prevent mosquitoes entering the tank.
Debris on the mesh cover over inlets / outlets	**Sediment / debris build-up in tank (more than 20mm thick)**
The fine stainless steel mesh is similar to fly screen mesh. It should be cleaned regularly to ensure it does not become blocked with leaves and other material.	Over time a small amount of fine sediment will collect in the bottom of your tank and this is harmless and natural. It should not be disturbed until it is approx 20 mm thick which may take many years. To clean your tank out simply empty your tank and wash out with a high-pressure washer or hose.
Dirt and debris around the tank base or side.	**Base area**
Keep leaf build-up, sticks, pot plants and other items off the lid of your tank. Use a hose to remove dust and dirt from the outside of the rainwater tank and ensure there is no debris on the base, bottom lip and walls of your tank.	Tanks must be fully supported by a flat and level base. Check for any movement, cracks or damage to the slab or pavers. If damage is observed, empty the tank to remove the weight and have the fault corrected to prevent damage to the tank. There is no warranty from suppliers for damage to a rainwater tank if the base has failed.
Smelly water or mosquitos	**Monitoring the water level**
Rainwater tanks can smell if there is debris in the gutters. Check the gutters and leaf strainers are clean. Mosquitos or wrigglers can make their way into your tank if they are small enough to pass through the inlet strainer. A very small amount of chlorine (approx 4 parts per million) can be put in the tank to kill off mosquitos or the bacteria causing odours. The chlorine will disinfect the water and then evaporate. Chlorine tablets from a pool supplier can be used (but check the recommended dose based on your tank capacity).	A range of devices are available to monitor water level. Some simple float systems can be used effectively.

Acknowledgement: Information from PJT 'Green Plumbing's 'Maintenance Guide for Your Rainwater Tank' was used to develop this fact sheet.

Water Sensitive Urban Design Stormwater Treatment Measures

Proposed New Dwelling 14 The Ridge, Oaklands Junction



Contents

1.0 SUMMARY 2

2.0 DISCUSSION 2
2.1 General 2
2.2 Storm Rating Tool 3
2.3 Rainwater Capture And Reuse 3
2.4 Infiltration Raingardens 3
2.5 Wels Scheme 4

3.0 STORM WATER MANAGEMENT 4
3.1 SITE MANAGEMENT PLAN 4

4.0 MAINTENANCE PROGRAM 4

5.0 CONCLUSION 4

6.0 APPENDICES 6
A. WSUD Strategies
B. Storm Rating Tools
C. Rainwater tanks installation and maintenance guidelines
D. Construction stage-Stormwater runoff management

1.SUMMARY

Water Sensitive Urban Design (WSUD) is an approach which integrates the management of all onsite water resources in a more sustainable way.

The stormwater analysis for this site aims to:

1. Minimise Stormwater runoff and pollution reduction
2. Minimise wastes from entering the ecosystem

Project Summary

Site area	4,333.94 sqm
Roof catchment area	952.0 sqm
Roof area to tank	642.0 sqm
Roof area to raingardens	308.0 sqm
Permeable Paving	322.0 sqm
Permeable Driveway	462.0 sqm
STORM rating achieved	101 %

This rating can be achieved if the following features are implemented on this site:
- Rainwater capture and reuse
- Infiltration raingardens
- Permeable paving

2.0 DISCUSSION

2.1 GENERAL

Rainwater from roofs and balconies contains water pollution which will require treatment prior to discharging into the Council's stormwater system. The proposed dwelling at 14 The Ridge, Oaklands Junction will be designed to meet the Council guidelines and policies. The objectives of the Council policy are as follows:

- Potable water reduction
- Stormwater re-use
- Protect surface and ground water entering waterways from stormwater pollution
- Reduce entry pollution into stormwater runoff
- Reduce effect of peak stormwater flows
- Integrate stormwater treatment measures into the landscape

The above measures have been considered and the following WSUD initiatives have been considered suitable for this development:

1. Rainwater capture and reuse
2. Water saving fixtures and fittings WELS Scheme
3. Infiltration raingardens
4. Permeable paving

5. Site Stormwater Management

2.2 STORM RATING TOOL

Storm rating calculator sourced from Melbourne Water has been used to confirm that a 101% WSUD rating can be achieved.

2.2.1 STORM SCORE OCCUPANCY CALCULATION
The size of the rainwater tank(s) is based upon the amount of water re-used. The STORM calculator assumes the tank is connected to the toilets with a water use rate of 20 litres per bedroom per day.

For residential properties the number of bedrooms is used as an indicative estimation for the number of people who will be using tank water.

The number of occupants/bedrooms has been calculated as follows:

- Toilet flushing
  Bedroom = 20L/day
- Washing machines
  Two washes per week (Assumed 4 WELS rated washing machines are used) x 70L/wash = 140L/week i.e equivalent 20L/day or one additional bedroom

Therefore, the STORM Tool calculation has allocated 6 bedrooms as the tank water demand for all units. Refer to Appendix C.

It should also be noted that the total combined water demand estimated for each unit does not consider the fact that tank water will also be used for garden irrigation and is therefore considered conservative

2.3 RAINWATER CAPTURE AND REUSE

A rainwater harvesting system will collect all the rainwater from the roof and divert it to two 71,097L tanks and 4 above ground raingardens. 12,000L of the collected tank water will be reticulated to toilets and the washing machine.

Rainwater collection and re-use will reduce runoff and significantly reduce pressure on stormwater infrastructure.

2.4 INFILTRATION RAIN GARDENS

Improved stormwater quality will be achieved on this site by the use of vegetation/soil for filtration of minerals and nutrient reduction from roof collected stormwater via three (4sqm x 1.0m high) above ground rain gardens located where shown on the plan attached in Appendix A

The use of rainwater gardens has been adopted to reduce stormwater pollution from roof water entering into the stormwater drainage system.

Refer to appendix "D" for above ground rain garden construction and maintenance guidelines. Vegetation selection is important and will be selected from suitable plants which have good root absorbance and can withstand long dry periods. Regular maintenance and inspection of the raingardens will be required to ensure their effectiveness.

2.5 WELS SCHEME

Further 20% potable water will be reduced for this site by the use of water efficiency appliances and fittings. The recommended WELS rating for the various fittings and fixtures to be used in this development are as follows:

- Toilets minimum 4 stars WELS rated
- Taps minimum 5 stars WELS rated
- Showers minimum 3 stars WELS rated
- Dishwashers minimum 4 WELS rated

3.0 STORMWATER MANAGEMENT

During the construction stage, measures will be put in place to minimise the likelihood of contaminating stormwater. This will include the installation of buffer strips around stormwater pits and ensuring that the site is kept clean from any loose rubbish at all times.

The builder shall follow the guidelines outlined in the "Keeping Our Stormwater Clean – A Builder's Guide" by Melbourne Water.

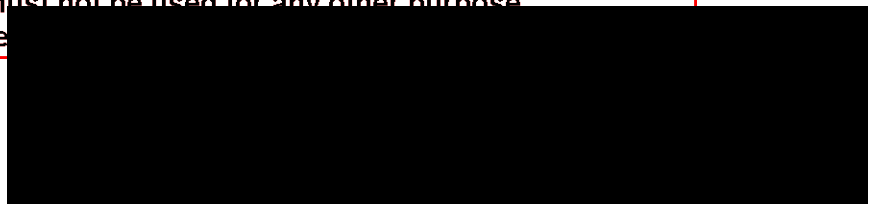
Keeping our stormwater clean guide can be downloaded from the following site:
http://www.melbournewater.com.au/content/library/rivers_and_creeks/keeping_our Stormwater clean-a_builders_guide.pdf

3.1 SITE MANAGEMENT PLAN

A site management plan is to be prepared by the contractor prior to construction commencing on site to control runoff to adjoining properties, to ensure that soil is not eroded, that dangerous chemicals and food waste cause damage to flora and fauna and that soil build up causes blockage to drains.

The site management plan is to implement the following measures:

1. Mesh Fabric positioned at the bottom of porous fences or gates for sediment control
2. Drain filters/sediment traps in front of side entry pits or over grated pits. Should it be necessary to pump out water from the site then the overflow should be contained with a sediment trap
3. Temporary down pipes should be connected to the stormwater mains to reduce on site flooding and erosion.
4. Crushed rock should be used around the site to allow clean access around the site and to reduce erosion
5. Mud left on the road as vehicles leave the site shall be immediately scrapped off and stockpiled and the road swept clean
6. Acid cleaning of bricks shall be avoided. Brick layers shall clean as they
7. Erosion control blankets shall be installed over mounded earth
8. Bins or rubbish cages shall be provided for construction workers and staff particularly where food is consumed
9. Separate bins for paints and solvents shall be safely removed and disposed off



4.0 MAINTENANCE PROGRAM

The following maintenance summary is proposed for the Stormwater Quality Improvement Devices to ensure they continue to operate as planned.

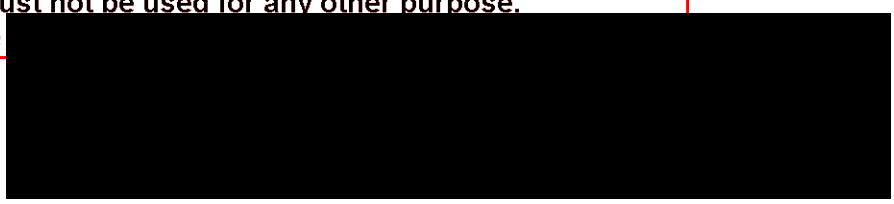
WSUD elements	Maintenance Responsibility	
	On Maintenance period	Off Maintenance period
Rainwater Tanks, Raingardens & Permeable paving	Builder	Owner/Occupier

Rainwater Tank

Description	Action	Maintenance Frequency
Gutter guards	• Inspection & cleaning	Every 6 months
Leaf diverters	• Inspection & cleaning	Every 6 months
First flush diverters	• Inspection & cleaning	Every 6 months
Water tank	• Prune overhanging tree branches and foliage • Inspection for defects and repair or replace as required.	Every 6 months
Water tank	• Monitoring sediment build-up &	1 – 2 years

Permeable Pavement

Description	Action	Maintenance Frequency
Inflow to porous joints and/or permeable pavers	• Re-profile the surface with hand tools and top up joint and drainage layer material • Remove rubbish, leaf litter or sediment	Every 3 months
Blocked pavement	• Remove sediment build up by vacuum sweeping or manually sweeping. Once removed, dispose of sediment in nearby	Every 3 months
Soggy and boggy soils	• Ensure that bedding and drainage layer contain appropriate material and haven't become blocked by fines. Replace the material as needed.	Every 3 months



Underdrainage	• Ensure that the water is flowing in the underdrain following rainfall by lifting pavers and inspect for blockages	Every 3 months

Raingarden

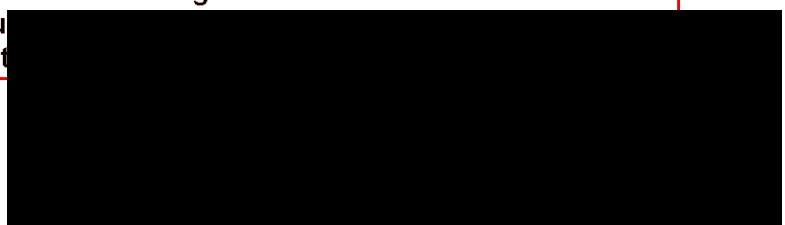
Description	Action	Maintenance Frequency
Filter media	• Inspected for sediment build up at inflow and outlets points. Holes that appear in the filter media (or other signs of erosion in preferential flow paths) should be filled. • Remove rubbish, leaf litter or sediment	Every 3 months and after significant storm events
Plants	• Assessed for diseases, pest infection and overall health. Between 6 and 10 plants per square meter is recommended. Weeds should be	Every 3 months
Drainage	• Ensure that the drainage layer has not become blocked by fines. Replace the material as needed. • Ensure that the water is flowing in the underdrain following rainfall by lifting pavers and inspect for blockages	Annually

5.0 CONCLUSION

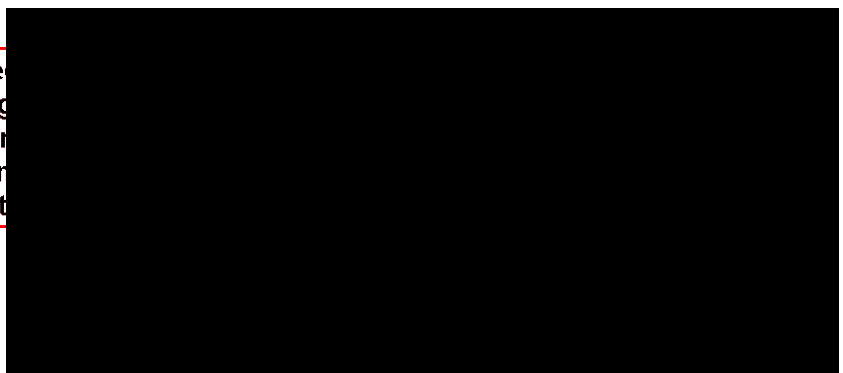
WSUD for this project will be achieved by the combined use of WELS rated fixtures, rainwater tanks, raingardens and permeable paving

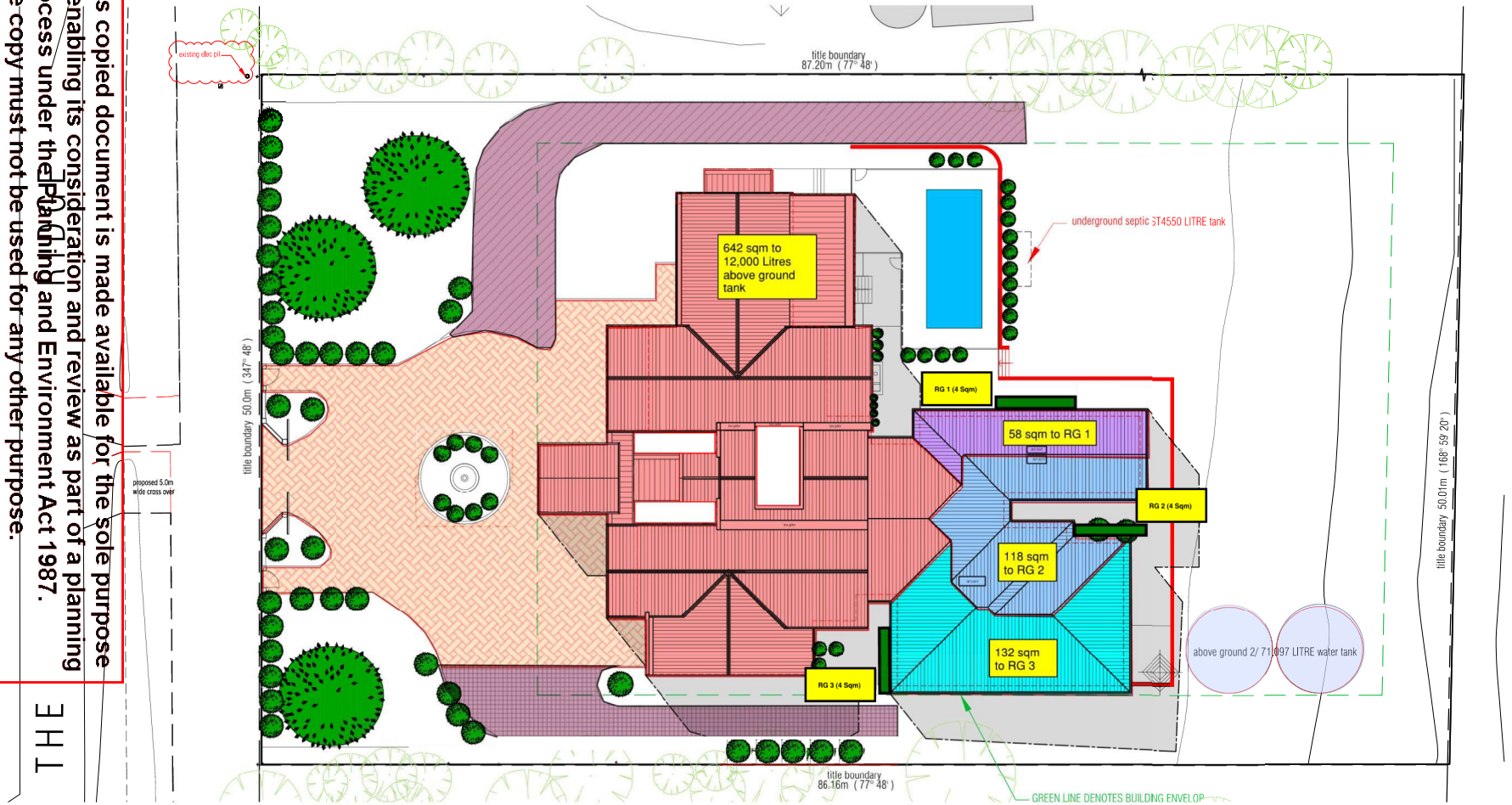
6.0 APPENDICES

A. Roof and site plan showing WSUD strategies for this site
B. Storm rating tool
C. Rainwater tanks installation and maintenance guidelines
D. Above ground Raingardens installation guidelines
D. Construction stage - Stormwater runoff management



APPENDIX A-
WSUD Strategies





The swimming pool and immediate surrounding has been discounted from the stormwater calculation as any pool overflow and rainwater shed from this area will not contribute to stormwater. Overflow will be directed to the sewer network due to high concentrations of pollutants such as chlorine.

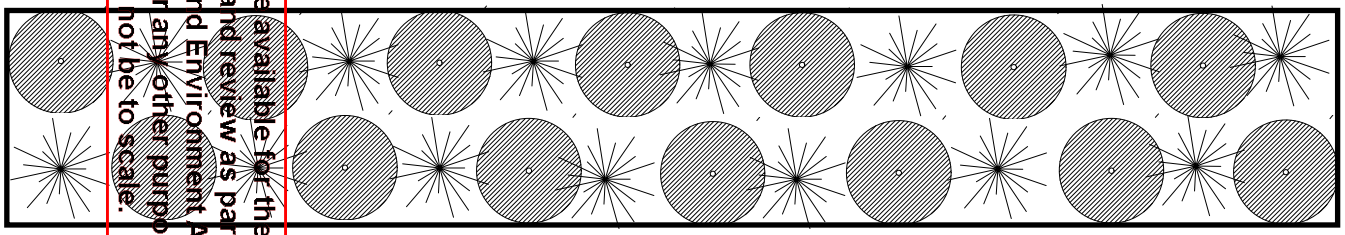
LEGEND

- Roof draining into two above ground 71,097L tanks. 12,000L is reticulated to toilets and the washing machine
- Roof draining to rainwater garden 1
- Roof draining to rainwater garden 2
- Roof draining to rainwater garden 3
- Permeable driveway pavers such as HydroSton pavers or similar
- Permeable crushed rock paving
- Above ground rainwater gardens 4 sqm each

AREA ANALYSIS

Site area	4,333.94 sqm
Roof area to tank	952 sqm
Permeable driveway	462 sqm
Permeable crushed rock paving	322 sqm

WSUD STRATEGIES
14 The Ridge, Oaklands Junction



RAINGARDEN PLAN VIEW (5.0m x 0.8m)

PLANT SCHEDULE

Dianella longifolia
Planting at spacings 500mm max.

Carex apressa
Planting at spacings 500mm max.

Raingarden Planting Schedule
14 The Ridge,
Oaklands Junction

Construction

While easy to construct, HydroSTON pavements need to be free draining and structurally stable. This requires creation of voids in the pavement substructure and compaction of materials around minimal lines'.

Maintenance

Regular removal of surface debris will maintain the performance of HydroSTON pavements. HydroSTON can be cleaned by brooming and sweeping with readily available water/suction equipment.

Research

HydroSTON pavers manufactured in Australia benefit from extensive research conducted over many years in Germany. Research focuses on hydraulic behaviour, pollutant retention, design, construction and maintenance.

Colours

Charcoal

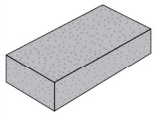
Natural

Other concrete colours can be manufactured during scheduled production runs.

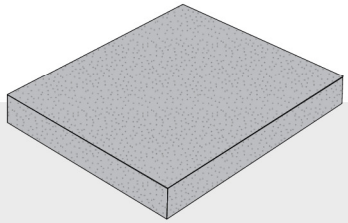
Applications

HydroSTON Pedestrian

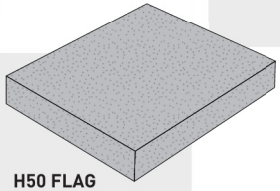
Suitable for footpaths, walkways, plazas, courtyards and tree surrounds.



H50 BLOCK
50 x 200 x 100mm



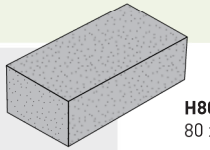
H50 FLAG XL
50 x 400 x 400mm



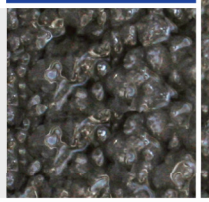
H50 FLAG
50 x 300 x 300mm

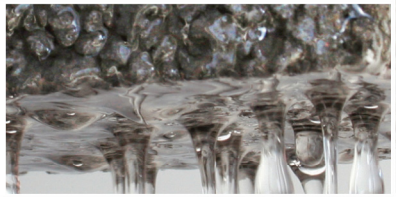
HydroSTON Traffic

Suitable for carparks, driveways and minor roads.



H80
80 x 206 x 136mm





HydroSTON
from HydroCon

Permeable Concrete Pavers

HydroCon Australasia Pty Ltd
24-30 Wellington Street
Waterloo NSW 2017
T: 02 8303 2423
E: info@hydrocon.com.au
www.hydroston.com.au

HydroCon

Managing water in the urban environment

Permeable pavements

The use of concrete, asphalt and other non-porous materials for roads, carparks, footpaths, driveways and many public spaces is having profound effects on the water cycle within the urban environment. It has been calculated that up to 50% of rain falling on cities and towns is rapidly eliminated via stormwater drainage systems to local waterways. Surface water runoff places heavy pressure on existing drainage systems and increases the volume and rate of flow in waterways.

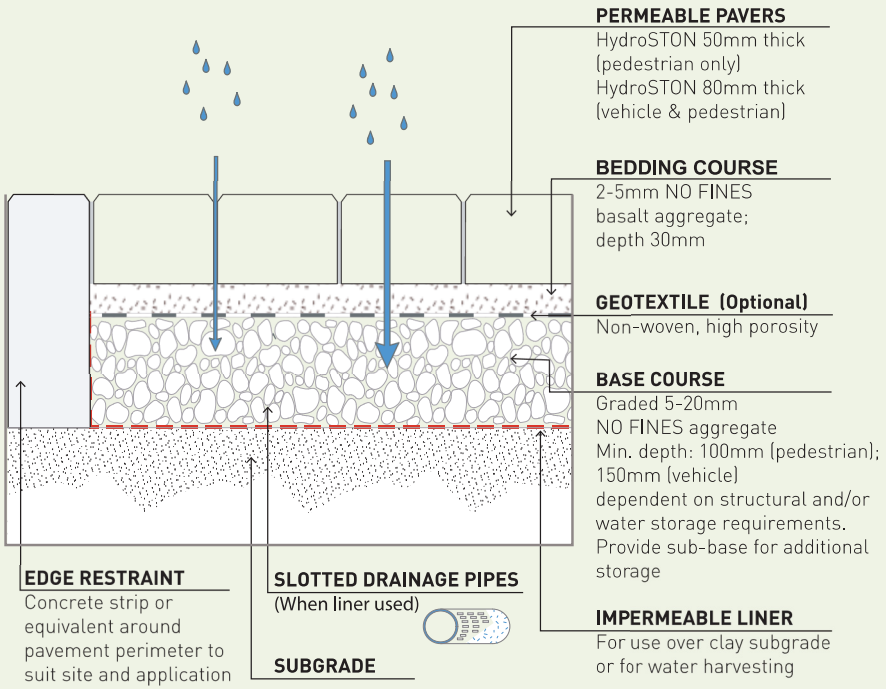
Permeable pavements can help restore the natural water cycle, reduce the impact of development on waterways and improve urban water security.

Permeable pavements offer an environmentally sustainable, cost effective and beneficial long term approach to site and urban drainage.

HydroSTON® permeable concrete pavers

- Are fully permeable, durable and non-slip
- Improve water quality by filtering stormwater runoff at source
- Facilitate on-site water retention and harvesting of stormwater
- Reduce local flooding and surface ponding
- Take pressure off existing stormwater drainage systems
- Assist in replenishing groundwater and aquifers
- Satisfy local government permeable area property ratios
- Increase water supply to trees and landscaped areas
- Allow root aeration
- Improve urban micro-climates

Infiltration through porous paving surface



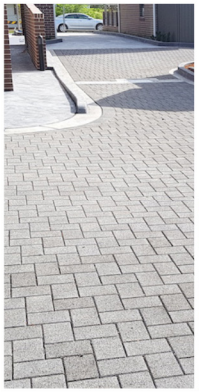
Harvesting and storage

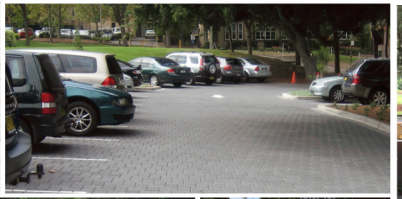
Installation of slotted collection pipes within a HydroSTON pavement allows water to be channeled to existing stormwater systems, waterways or to storage tanks for potential reuse. Placement of a liner around the HydroSTON pavement prevents ground infiltration and overcomes problems associated with clay soils.

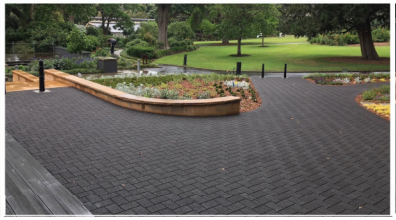
Infiltration

HydroSTON allows rain and stormwater to permeate into the ground as occurs naturally in rural and undeveloped environments.

Infiltration 'at source' reduces stormwater runoff, improves water quality, supplements groundwater and lowers temperature in densely settled urban areas.







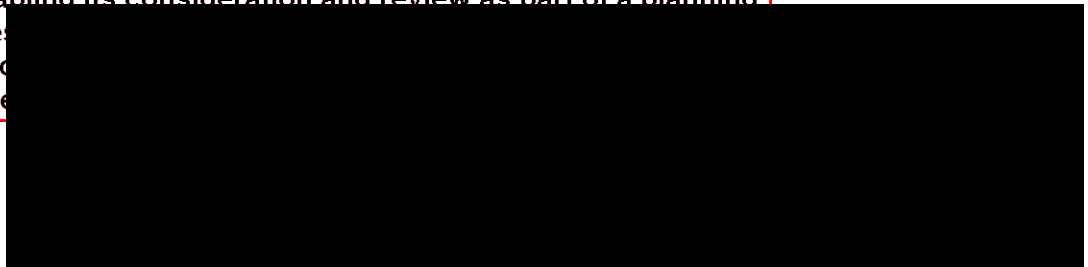
Permeability

HydroSTON pavers are categorised as "free draining" under AS 4456.16 with average rates under laboratory testing of at least 270mm per minute or 4.5 l/sec/m². HydroSTON pavements have very high permeability rates due to 100% permeable surface area. Overall performance of HydroSTON pavements depends not only on infiltration capacity of pavers but also on pavement substructure (and subgrade in the case of infiltration applications).

Water quality

HydroSTON assists in improving water quality by filtering out debris and pollutant laden particles. Pollutants such as heavy metals, hydrocarbons and nutrients (phosphorous) attached to particles are retained in the surface layer of HydroSTON pavements, where they can be flushed out by periodic cleaning.

APPENDIX B- Storm Rating Tool



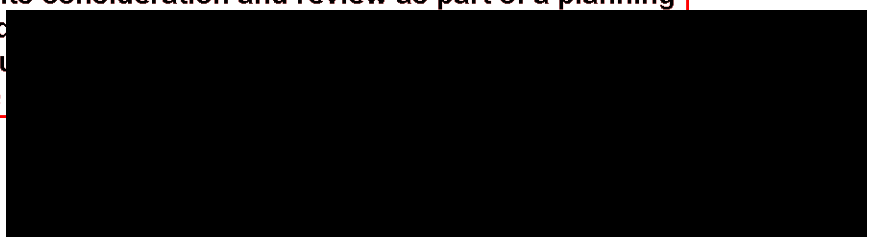
STORM Rating Report

TransactionID:	0
Municipality:	HUME
Rainfall Station:	HUME
Address:	14 The Ridge
	Oakland Junction
	VIC 3063
Assessor:	[redacted]
Development Type:	Residential - Dwelling
Allotment Site (m2):	4,333.94
STORM Rating %:	101

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
Roof to tank	642.00	Rainwater Tank	12,000.00	6	85.60	100.00
Roof RG	310.00	Raingarden 100mm	12.00	0	132.60	0.00

Date Generated: 18-Oct-2024 Program Version: 1.0.0

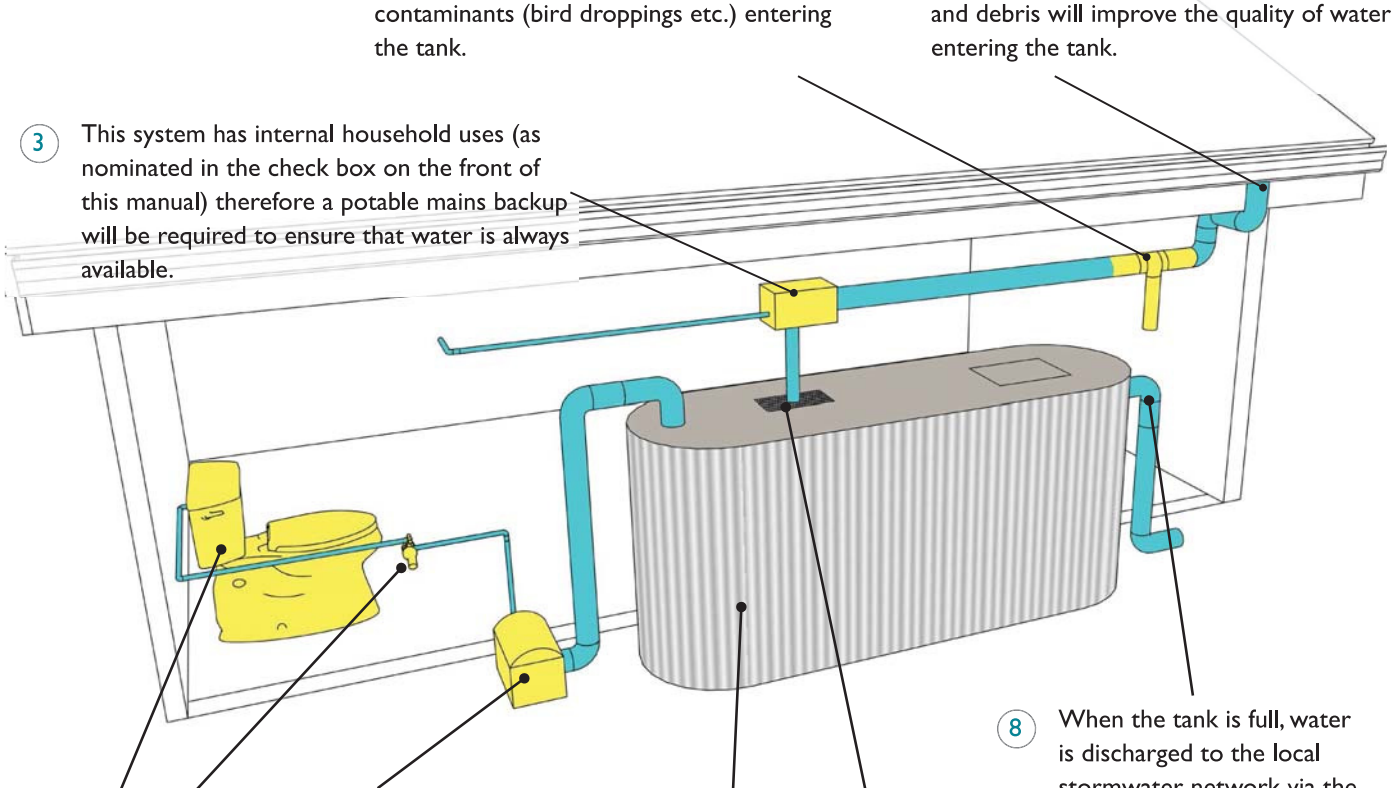
APPENDIX C- Rainwater Tanks installation and Maintenance Guidelines



Maintenance Overview

Rainwater Tank Maintenance

The following diagram identifies the key items which are important for rainwater tanks and their maintenance.



2 Rainwater passes through a first flush diverter, this device reduces the risk of contaminants (bird droppings etc.) entering the tank.

1 Rainwater enters the tank from the roof gutters - keeping these clear from leaf litter and debris will improve the quality of water entering the tank.

3 This system has internal household uses (as nominated in the check box on the front of this manual) therefore a potable mains backup will be required to ensure that water is always available.

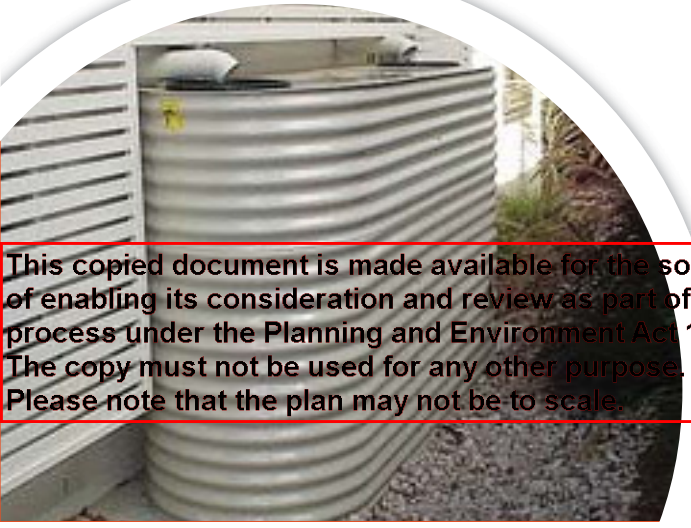
8 When the tank is full, water is discharged to the local stormwater network via the tank overflow system.

6 A pump transfers rainwater from the tank into the distribution network.

7 Pipes and taps are used to distribute rainwater for internal (e.g. toilet and laundry) uses and external (e.g. garden).

4 Collected rainwater flows through a protective mesh cover before entering the tank. The mesh filters sediment and debris from the water and keeps mosquitoes and other animals out of the tank.

5 Rainwater is stored in the tank until used.



Maintenance Checklist

The property owner is responsible for checking the maintenance items in this checklist at the recommended frequency at the bottom of the table. The maintenance log at the bottom of the page should be filled in once each maintenance check is complete. Upkeep of this maintenance log should continue throughout the life of the rainwater tank.

Item	Rainwater tank element	Inspection item	Y/N	Likely maintenance task
1	Roof gutters and downpipes	Is there leaf litter or debris in the gutters?		Remove by hand and dispose responsibly.
2	First flush diverter	Is there anything blocking the first flush diverter (leaves etc)?		Remove by hand and dispose responsibly.
3	Potable mains back up device	Is the potable mains back up switch operating correctly?		Repair or replace device. Consider a manual switching device.
4	Mesh cover	Has the mesh cover deteroriated or have any holes in it?		Replace mesh cover.
5	Tank volume	Is there large amounts of sediment or debris sitting in the bottom of the tank, reducing the volume available in the tank to store water?		Remove sediment and dispose responsibly.
6	Pump	Is the pump working effectively? Have you heard it on a regular basis?		Check the potable mains back up is not permanently on. Repair or replace pump.
7	Pipes and taps	Are pipes and taps leaking?		Repair as needed.
8	Overflow	Is the overflow clear and connected to the stormwater network?		Remove blockages and/or restore connections to stormwater network.
9	Supporting base	Are there any cracks or movement of pavers?		Empty the tank to reduce weight then repair any damage to the base.

Maintenance frequency

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All tasks	x			x			x			x		

Regular maintenance will improve the water quality and extend the life of your system. A well maintained tank isn't likely to need to be cleaned out for up to ten years (when there is more than 20mm of accumulated sediment).

Maintenance Log

Maintenance date	Maintenance undertaken

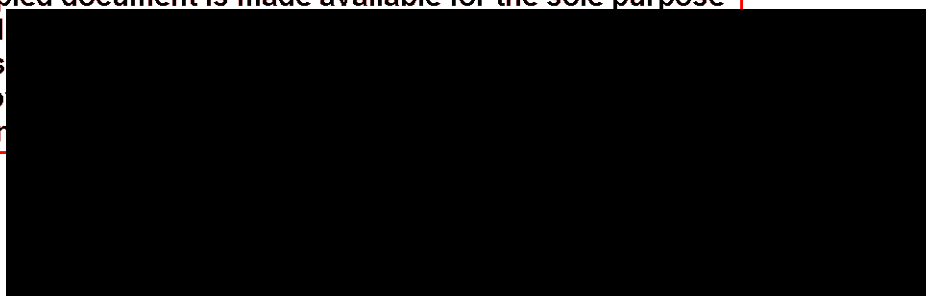
Tips for undertaking maintenance

Things to look for and how to fix them.

Leaf litter / debris in gutters	**Pump not working**
Regularly clear your gutters. Make sure you cover the tank inlet if you're rinsing down the gutters to avoid debris entering the tank.	Check operating instructions for your pump. Check that pumps are kept clear of surface water (flooding), vegetation, and have adequate ventilation. Pumps should be serviced every few years to prolong the pump life.
Blocked downpipe	**Mains backup or pump not working**
If you see water spilling from the edge of the gutters check that the downpipe is not blocked, removing any debris.	Have you heard the pump operating? If the mains backup switching device fails many people do not notice for a long time. Consider a manual system if the switching device is problematic and you don't mind operating it manually.
First flush diverter clogging	**Overflow**
To clean out, unscrew the cap at the base of the diverter and remove the filter. Wash the filter with clean water and the flow restrictor inside the cap.	Check that the overflow is not blocked and that there is a clear path for water to safely spill from the tank through the overflow pipe when full. Check that a clean mesh screen is safely in place to prevent mosquitoes entering the tank.
Debris on the mesh cover over inlets / outlets	**Sediment / debris build-up in tank (more than 20mm thick)**
The fine stainless steel mesh is similar to fly screen mesh. It should be cleaned regularly to ensure it does not become blocked with leaves and other material.	Over time a small amount of fine sediment will collect in the bottom of your tank and this is harmless and natural. It should not be disturbed until it is approx 20 mm thick which may take many years. To clean your tank out simply empty your tank and wash out with a high-pressure washer or hose.
Dirt and debris around the tank base or side.	**Base area**
Keep leaf build-up, sticks, pot plants and other items off the lid of your tank. Use a hose to remove dust and dirt from the outside of the rainwater tank and ensure there is no debris on the base, bottom lip and walls of your tank.	Tanks must be fully supported by a flat and level base. Check for any movement, cracks or damage to the slab or pavers. If damage is observed, empty the tank to remove the weight and have the fault corrected to prevent damage to the tank. There is no warranty from suppliers for damage to a rainwater tank if the base has failed.
Smelly water or mosquitos	**Monitoring the water level**
Rainwater tanks can smell if there is debris in the gutters. Check the gutters and leaf strainers are clean. Mosquitos or wrigglers can make their way into your tank if they are small enough to pass through the inlet strainer. A very small amount of chlorine (approx 4 parts per million) can be put in the tank to kill off mosquitos or the bacteria causing odours. The chlorine will disinfect the water and then evaporate. Chlorine tablets from a pool supplier can be used (but check the recommended dose based on your tank capacity).	A range of devices are available to monitor water level. Some simple float systems can be used effectively.

Acknowledgement: Information from PJ 'Green Plumbing's 'Maintenance Guide for Your Rainwater Tank' was used to develop this fact sheet.

APPENDIX D- Above Ground Raingardens Installation Guidelines



INSTRUCTION SHEET

Building a planter box raingarden (lined)

healthy waterways
Raingardens

What is a planter box raingarden?

Building a raingarden is a simple way to help the environment and the health of our local waterways while providing a self-watering garden for your backyard.

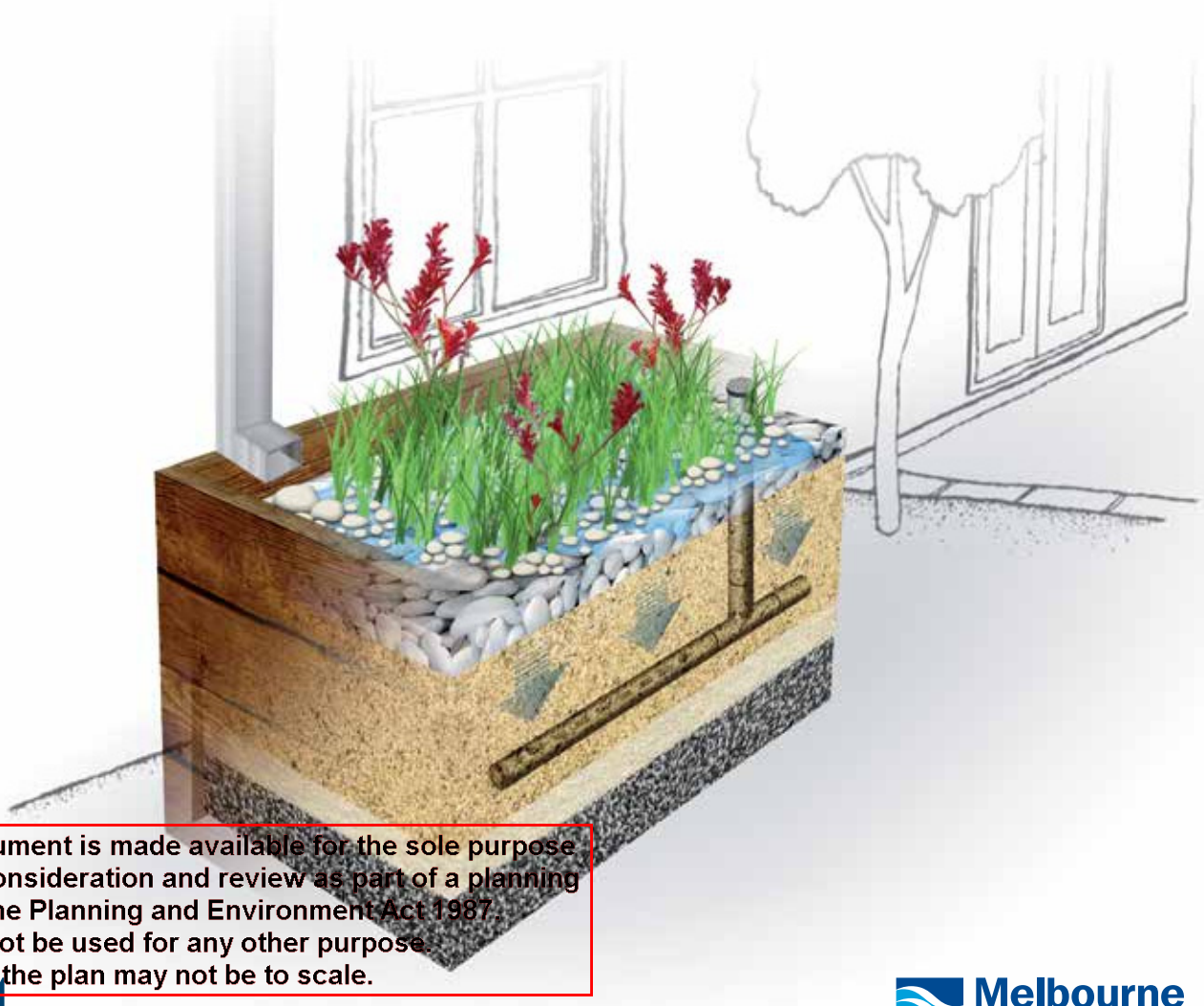
A raingarden is a specially prepared garden designed to receive and filter rain run-off from roofs or hard surfaces such as driveways or paving. You can even create a raingarden in a planter box, positioning it to collect water from a diverted downpipe or rainwater tank overflow.

Featuring layers of soil for filtration, gravel for drainage, and plants that can tolerate periods without rain, a raingarden helps to protect our streams and rivers from stormwater pollutants.

With a slotted pipe beneath the soil to take away the filtered rainwater and an overflow pipe on the surface to prevent flooding, raingardens are designed to collect water from a diverted downpipe, rainwater tank overflow or pavement runoff.

Please note: A certified plumber must be used for stormwater connections and modifications.

Did you know that a raingarden is only wet during and immediately after rain, leaving it dry most of the time? This is due to the drainage and filtration properties of the soil combination used in the raingarden.



State Government Victoria

Melbourne Water

Building your raingarden

Step 1 – getting started

Location

Build your planter box as close as possible to the water source whether it be a downpipe or rainwater tank overflow. This will help minimise the additional plumbing needed to bring water to the raingarden. Your raingarden needs to sit at least 300mm away from your house.

Having decided on a location, it is important to determine the proximity of the existing stormwater pipe to make sure your raingarden is connected properly. Your local plumber can help with this and also how and when to divert your downpipe so that the area doesn't flood during construction.

Stormwater reconnection

All connections or modifications to existing stormwater pipes need to be done by a licensed plumber. The plumber should ensure that pipes are reconnected into the property's stormwater and not another services such as the sewer.

Underground services

Be aware of any underground services (gas, electricity, water) that run near your house as this may determine where you can build your raingarden. Raingardens should not be built over or in close proximity to a septic system.

Materials

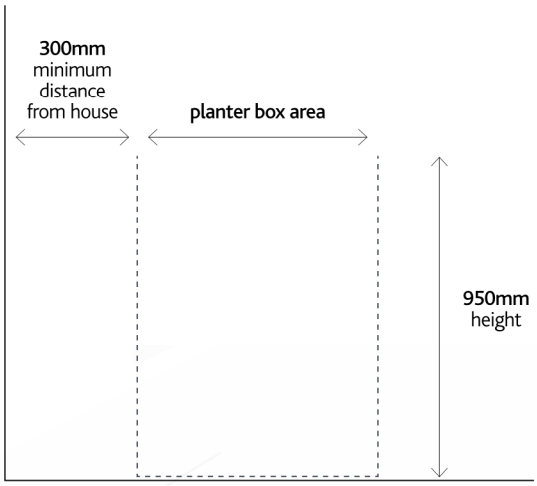
See *Materials List* for information about what you need to build a raingarden.

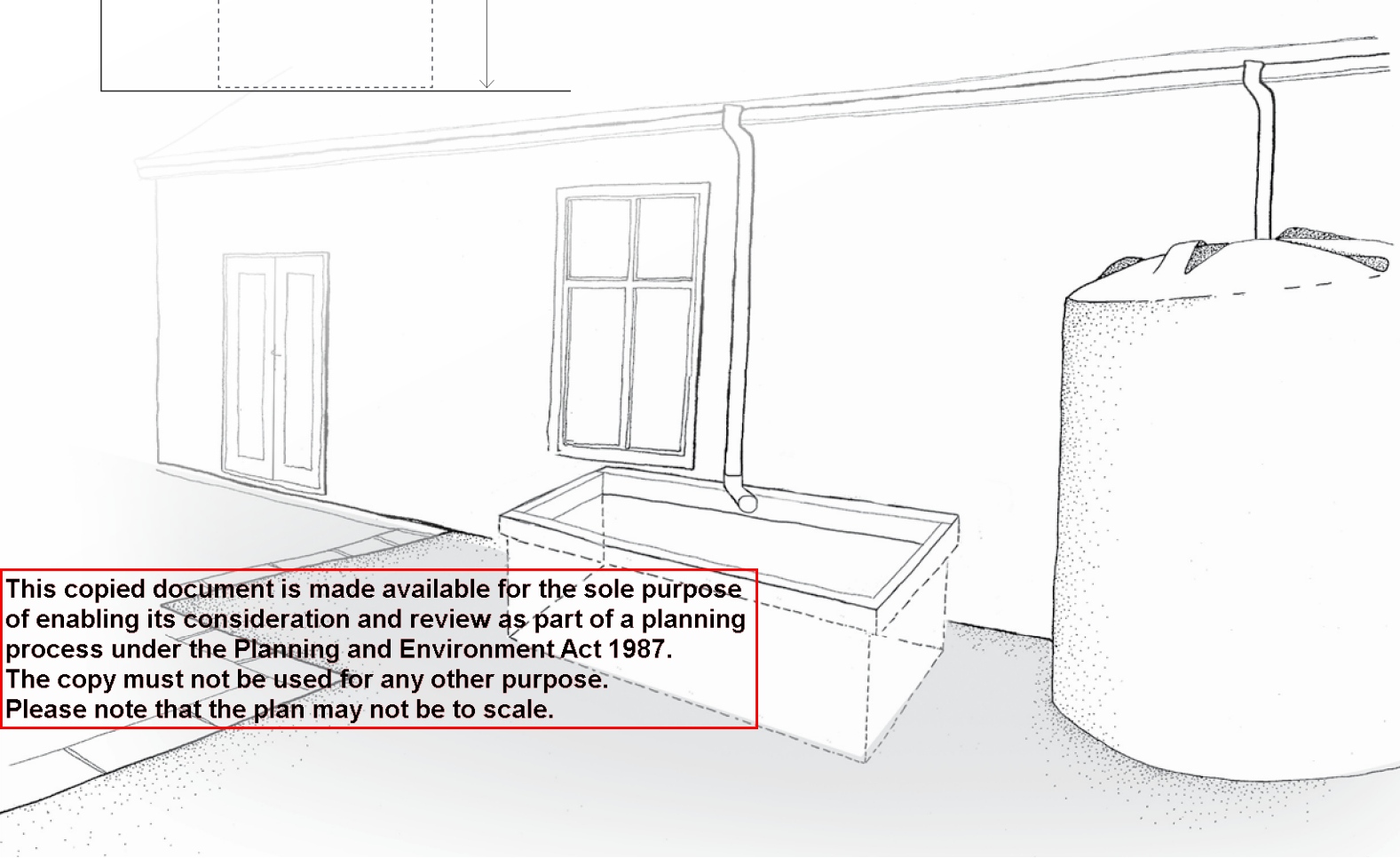
Size

You need to make sure that your raingarden is large enough to manage the amount of stormwater it will receive. If your raingarden is going to capture run-off from the roof via a downpipe, measure the area of roof that drains to that downpipe. Generally, the size of the raingarden should be approximately 2% of the run-off area. Table 1 will help you work out the correct size.

Table 1 – Raingarden sizing chart

AREA OF RUN-OFF (m²)	RAINGARDEN SIZE (m²)
50	1
100	2
150	3
200	4
250	5
300	6
350	7
400	8
450	9





Step 2 - planter box and pipe infrastructure

Preparing your planter box

You can create a planter box out of any material as long as it is strong enough to hold soil. This could be a corrugated iron 'tank', an old wine barrel, or you could build your own planter box using plantation hardwood or similar.

Line your planter box (sides and base) with a PVC liner. Overlap the sheets by 200mm and seal the joins with PVC tape.

Place the 7mm screenings (gravel) to a depth of 50mm. This will form a base for the slotted drainage pipe. Make sure the screenings are washed and cleaned of excess dirt as this can create blockages in the raingardens drainage.

Use the screenings to create a gentle slope towards the stormwater outlet (where the water will exit your planter box).

Pipe infrastructure

Lay a 90mm diametre slotted drainage pipe horizontally along the centre of the planter box base and cap one end of the slotted drainage pipe. Call your plumber to connect the drainage pipe back into the property's existing stormwater.

Handy Hint – If your raingarden is greater than 4m wide, you will need to install two slotted drainage pipes and two overflow pipes. These need to be evenly spaced across the planter box base to provide adequate drainage.

Connect the vertical 90mm diameter overflow pipe into the slotted drainage pipe using a 90 degree elbow pipe. When the raingarden is finished, the top of the overflow pipe should sit 100mm above the gravel mulch and 100mm below the top edge of the planter box.

Install a temporary cap on top of the overflow pipe to prevent materials dropping into it during construction. Some plastic taped across the top of the pipe will work fine.

Building your raingarden

Step 3 - soil layers

Screenings layer

Add 7mm screenings (gravel) to a depth of 150mm over the slotted drainage pipe in the base of your raingarden. This brings to total depth of screenings (gravel) to 200mm. Be careful when not to dislodge or damage the slotted drainage pipe when adding the additional screenings.

Sand layer

Place white washed sand to a depth of 100mm over the screenings (gravel) layer.

Sand/soil mix layer

Mix 4 parts white washed sand with 1 part topsoil. Add this mix to the raingarden to a depth of 400mm.

Handy Hint - Ensure you firmly pat down each layer of soil when building your raingarden to help reduce the layers from sinking.

Step 4 -pipe adjustments, plants and mulch

Pipe adjustments

Redirect your downpipe into the raingarden using pipe bends where required. If possible, use two 45 degree bends connected together as this will provide a much gentler and more even flow of water, reducing the risk of erosion and prevent blockages within the downpipe. A 90 degree elbow pipe will do as an alternative.

Plants

In general, plants that grow well in a raingarden:

- like dry conditions but can tolerate temporary wet periods
- are perennial rather than annual
- have an extensive fibrous root system.

A wide range of plants are suitable for raingardens and your local nursery will be able to guide you on what is right for your area.

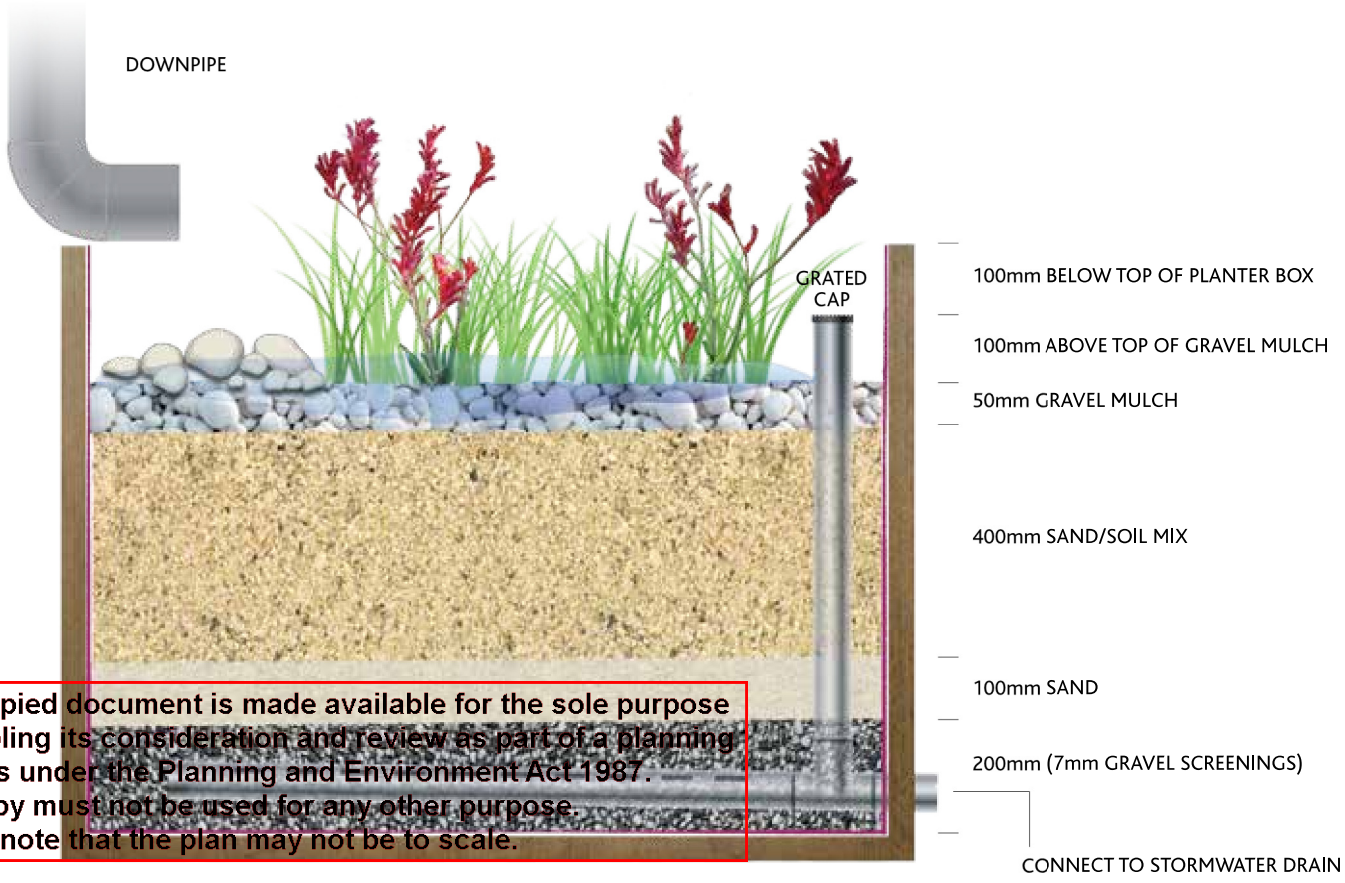
There are also particular plants that are really good at removing pollutants from stormwater. These include:

- *Carex appressa*
- *Lomandra longifolia*
- *Juncus flavidus*
- *Melaleuca ericifolia*
- *Goodenia ovate*.

50% of your raingarden should be planted with these species, the other 50% can be made up of plants that like a dry environment with intermittent wet periods. It is important that the plants you select are suitable for the amount of sun and shade on your raingarden. See the *Plant List* for a suggested list of suitable raingarden plants.

Regardless of the type of plants you select, it is important to plant densely to cover the raingarden. Set your plants out at roughly 6 plants per m². So for a 2m² raingarden, you will need to buy 12 plants. Now start planting.

(continued on next page)



Looking after your raingarden

Mulch

To allow the spread of water gently over the raingarden, place some large flat rocks where water flows from the downpipe. Place smaller rocks in between the large rocks to fill the gaps and help prevent erosion. Alternatively a flow spreading device can be fitted to the downpipe.

Spread gravel mulch to a depth of 50mm around the plants.

Remove the temporary end cap from overflow pipe and replace with a 90mm PVC finishing collar and domed pipe grate.

Water the plants in – complying with your local water restrictions.

Once established, raingardens are low maintenance especially when planted with native plant species. They don't need to be watered, mowed or fertilised. However, a few simple tips can help your raingarden mature and function well.

- Gravel mulch will help retain moisture in your raingarden and prevent weeds from growing.
- Ensure that the overflow is never blocked.
- Remove any sediment or build up from the downpipe.
- Some weeding may need to take place until plants have matured.
- Evenly distribute water flow into your garden to limit erosion from heavy rainfall. Strategically placed rocks may help with this.
- Inspect your garden regularly – replace plants and repair erosion when necessary.

Note – If necessary, water your raingarden until your plants have established in compliance with your local water restrictions.

Need help?
If you have questions about building a raingarden, your landscape gardener or local plumber may be able to help. For more information visit melbournewater.com.au/raingardens

Materials List – what you need to build your raingarden

Table 2 details the materials required to create a 2m² raingarden. While item prices may vary depending on the materials you select, building a 2m² raingarden is likely to cost between $400 and $500 (plus the cost of a planter box and plumber).

QUANTITY	MATERIAL
2 l/m	90mm diameter slotted drainage pipe (Ag Pipe)
2 l/m	90mm diameter uPVC pipe*
0.4m³	7mm screenings
0.85m³	Sand (white washed)
0.15m³	Topsoil
12	Plants (150mm pots)
0.1m³	Gravel mulch
1	90mm diameter uPVC 90 degree bend or 2x 45 degree bends
1	PVC grate 90mm finishing collar
1	PVC 90mm diameter domed pipe grate
1	PVC 90mm tee
1	PVC 90mm cap
10m²	PVC liner
	PVC tape

**Costs per square meter will depend on the length of connections back to the existing stormwater drain.*

l/m = lineal metres m² = square metres m³ = cubic metres mm = millimetres

Plant List – the best plants for your raingarden

The following plants grow well in raingardens.

BOTANICAL NAME	COMMON NAME	CONDITIONS	SIZE (H x W) (cm)
Anigozanthos sp.	Kangaroo paw	Full sun	30-90 x 100-120
Blechnum nudum	Fishbone Water-fern	Full sun to partial shade	50-100 x 40-80
Calocephalus lacteus	Milky Beauty-heads	Full sun to partial shade	15-30 x 10-30
Carex Appressa	Tall Sedge	Full sun to partial shade	80-100 x 120
Carpobrotus modestus	Pigface	Full sun	20cm high and spreading
Chrysocephalum apiculatum	Common Everlasting	Full sun	30-90 x 10-30
Derwentia perfoliata	Digger's Speedwell	Full sun to partial shade	20-40 x 30-60
Dianella species		Full sun to partial shade	60-120 x 40-150
Ficinia nodosa	Knobby Club-rush	Full sun	50-150 x 60-200
Juncas amabilis	Hollow Rush	Full sun to partial shade	20-120 x 20-50
Juncas flavidus	Yellow Rush	Full sun to partial shade	40-120 x 20-100
Leucaphyta brownii	Cushion Bush	Full sun, salt tolerant	100 x 200
Lomandra species		Full sun to partial shade	60-120 x 50-100
Melaleuca ericifolia	Swamp paperback	Full sun to partial shade	4m high x 3m wide
Myoporum parvifolium	Creeping Boobialla	Full sun	20-30 x 300
Patersonia occidentalis	Native iris	Sun to partial shade	20-40 x 30-60
Pratia perdunculata	Matter Pratia	Partial shade	50-150 x 1.8-5
Wahlenbergia communis	Tufted Bluebell	Full sun	15-50 x 15

Melbourne Water
990 La Trobe Street
Docklands VIC 3008

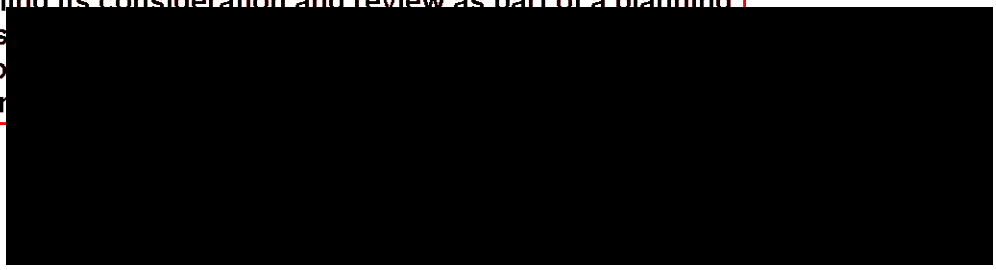
PO Box 4342
Melbourne Victoria 3001
Telephone 131 722
melbournewater.com.au/enquiries

ISBN 978-1-921603-51-8 (print)
ISBN 978-1-921603-52-5 (web)

Version 7, December 2013

Melbourne Water

APPENDIX E- Construction stage Stormwater Run-off Management

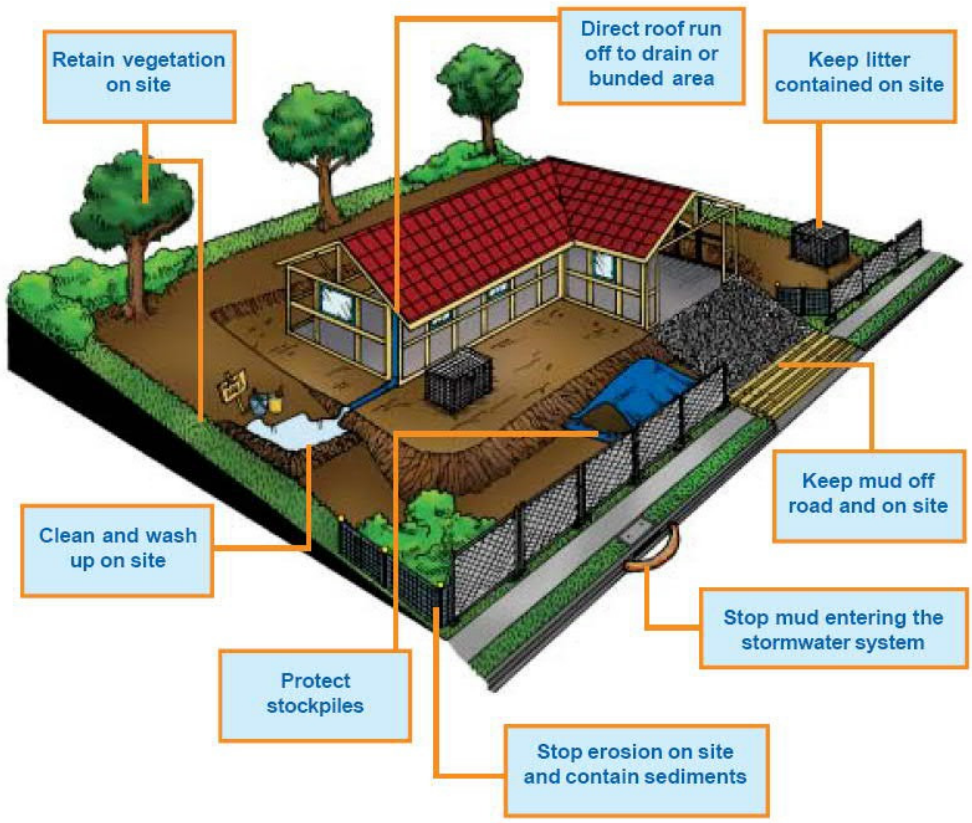


Stormwater Runoff Treatment during the Construction Stage

Stormwater management in the construction stage will include measures which will be put in place to minimise the likelihood of contaminating stormwater discharge from the site as well as reduce the velocity of the flows generated from the building as it is being constructed. This will mean ensuring buffer strips are in place, and the site will be kept clean from any loose rubbish. More information is available from "Keeping Our Stormwater Clean

– A Builder's Guide" by Melbourne Water[3]. The diagram below is an illustration of the various objectives which assist in minimising the impacts of stormwater runoff typical during the construction phase. Typical pollutants that are generated from a construction site during a rainfall event include:

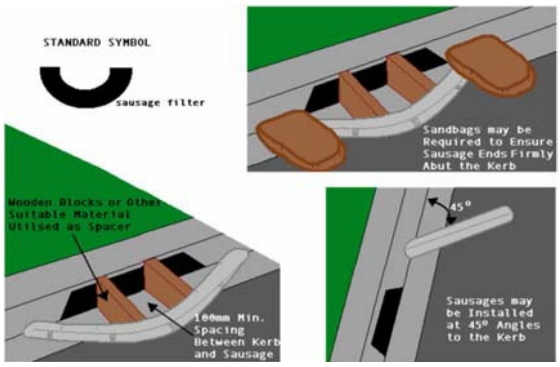
- Dust
- Silt
- Mud
- Gravel
- Stockpiled materials
- Spills/oils
- Debris/litter



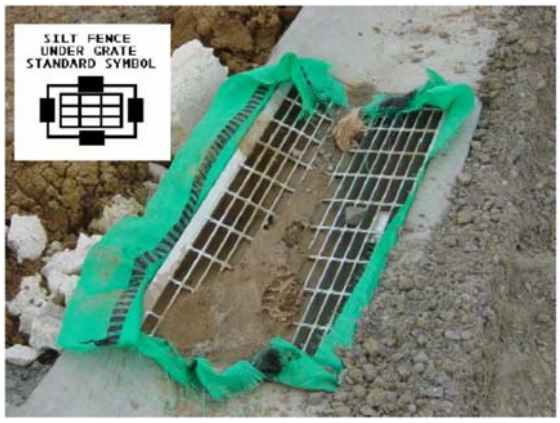
To reduce the impacts and minimise the generation of these pollutants the following measures are proposed. The symbols embedded within each image are typically used for

To reduce the impacts and minimise the generation of these pollutants the following measures are proposed. The symbols embedded within each image are typically used for Construction Environmental Management Plans.

Gravel Sausage filters – to be placed at the entrance of pits/side stormwater inlets. These permeable sacks will filter the suspended soils and sediments and any other litter carried by the stormwater to prevent the pollutants entering the system.



Silt Fences Under Grates - Silt fence material may be placed under the grate of surface-entry inlets to prevent sediment from entering the stormwater system.



Temporary Rumble Grids – these are designed to open the tread on tires and vibrate mud and dirt off the vehicle (in particular the chassis). This will heavily minimise the amount of soil/dirt deposited on local roads where it can be washed (by rainfall or other means) into the stormwater drains.

THE FOLLOWING HAVE BEEN IDENTIFIED AS SIGNIFICANT ENVIRONMENTAL ASPECTS FOR THE SITE:

- Noise
- Dust
- Erosion & Sediment
- Stormwater Runoff
- Waste
- Chemicals

These aspects shall be managed with the environmental protection measures outlined in this plan.

MANAGEMENT

1. Builder's Responsibilities:
- Implement this site management plan
- Keep public & site personnel safe
- Eliminate/reduce any environmental impacts

2. Communication of EMP Requirements:
- Induction of all persons working on site regarding requirements as set out on the site management plan
- Copies of the site management plan to be displayed in visible location within site compound e.g on walls of site shed/office

3. Inspections and Maintenance:
- Site to be inspected & reviewed by site management staff regularly and at a minimum two inspections per week
- Prior to & after storm event and/or heavy rain
- Site to be maintained in a safe condition. All rectification to be addressed within 12 hours of incident/report

4. Staging Of Works:
- Stage the stripping/soil disturbances of the site.
- Keep as much vegetation cover as possible over soil
- Avoid any earthworks/site disturbances during rainfall events to minimise soil erosion
- All activities to be undertaken during normal working hours
- All excavations shall have temporary fencing installed around their perimeter

5. Informing Residents:
- Prior to start of construction works inform the adjoining residents of the works to be completed and the estimated completion date via any means deemed necessary

6. Associated Documents:
- Working drawings
- Endorsed drawings & planning permit
- Sustainable design assessment (if applicable)
- Thermal performance assessment
- Tree management Plan
- All other relevant documentation

NOISE — RISK: LOW

Requirement: EPA Victoria and Council requirements must be adhered to in relation to the level of noise and working hours, to ensure that residents and other applicable neighbours to the site are not disturbed unreasonably. The generation of noise must be minimised.

7. Working Hours:
- Hours of work on site shall be in accordance with council local laws & asset protection permit conditions

8. Noise Minimisation Methods:
- All activities to be undertaken during working hours
- Restrict use of noisy equipment & processes to avoid disturbance to adjacent properties

9. Other:
Nil

DUST — RISK: MEDIUM

Requirement: Dust generation must be minimised to ensure there is no health risk or loss of amenity.

10. Minimising Dust Generation:
- Avoid stripping large areas at once. Consider stripping in stages where possible
- Any activity involving the handling and moving of soil to be restricted on dry windy days

11. Dust Suppression:
- All loads of soil taken off site for disposal must be covered
- Water truck to be available on site full-time to spray truck routes and exposed surfaces

12. Contingencies:
- Stop work if dust generated from site reaches neighbouring areas or properties. If visibility is affected on adjoining roads or if dust on the work site is a risk to occupational health
- Where there is a delay in continuation of works, stripped areas must be sprayed with dust surfactant/suppressant or hydro-seeded to minimise dust

13. Other:
Nil

EROSION AND SEDIMENT — RISK: MEDIUM

Requirement: Erosion and sediment must be managed in accordance with current best practice environmental management practices, to prevent sediment-laden water from entering any drainage system or natural waterway.

14. Drainage Management:
- All side pits & surface drains to be appropriately protected from sediment influx using traps & filters
- Bunded wash bay shall be set up for collection of stormwater and excess water flow as shown on the plan
- Temporary connection will be made from downpipes to the stormwater system

15. Soil Stabilisation:
During construction:
- Water spraying to establish a thick crust over un-vegetated land
- Remove all excess/pools of water as soon as possible after heavy rainfall/wet event
- Grading, excavation and construction must not proceed during periods of heavy rainfall

Post construction:
NA

16. Stockpile Protection:
- Minimise the number and size of stockpiles – maximum 2:1 height to width ratio
- Sediment retention structures to be place downslope of all stockpiles

17. Sediment Traps:
- Sediment runoff controls and drainage around all construction areas must be established prior to the commencement of any building or works
- All sediment control measures must be maintained, kept intact for the duration of the works and inspected regularly including prior to and post rainfall events to ensure they are functioning properly
- Sediment fencing to be installed downslope of disturbed areas.
- Sausage filters to be placed and regularly inspected on nearby stormwater inlets on The Ridge

18. Dewatering:
Remove pools of excess water as soon as possible after heavy rainfall

19. Vehicle and Road Management:
Site access
Coarse granular material to be installed at access point and are maintained regularly to ensure effectiveness.
Cleaning vehicles
Wash all equipment in designated wash down area. Sediment fencing (or other acceptable sediment control measure) to be erected around vehicle washdown area
Street cleaning
The Ridge road surface is to be inspected regularly and any sediments deposited there will be fully removed until the completion of the works

20. Other:
Nil

WASTE — RISK: MEDIUM

Requirement: Litter and waste must be contained on site, before being disposal in a responsible manner. Waste generation must be minimised.

21. Movement of Soil: Offsite/ On Site/ N/A
Contaminant Status: Clean fill

22. Waste Minimisation Methods:
- Separate recyclable waste and materials from general waste for recycling
- Recycling bins clearly marked to avoid contamination of recyclable materials
- Standard size materials will be specified and prefabricated materials will be used wherever possible

23. Waste Storage and Disposal:
- Bins to have lids to prevent rubbish from blowing away
- Lidded rubbish and recyclables bins to be provided for non-construction waste generated on site.
- Construction skips to be used for material waste sorting to maximise waste materials recycling. These will be collected at regular intervals
- Worksites are to be free of litter – Conduct a daily site check at the end of each workday, collect litter and dispose of into general waste bins and recycling skip as appropriate

24. Other:
Construction waste data such as weight/volume and percentage of recyclables shall be recorded and kept on site

CHEMICALS — RISK: LOW

Requirement: Storage and spill management practices must be implemented to ensure that no environmental damage can result from the escape or spillage of chemicals or fuels.

25. Storage:
- Paints & chemicals stored on site will have lids tightly closed at all times
- All relevant safety data sheets will be kept on site
- Paint & chemical storage will be regularly inspected and monitored
- All fuels, oils and other hazardous materials to be stored in appropriate designated area

26: Spill Management:
All spills to be cleaned up immediately to avoid contamination of the soil or water course. All spills to be reported to the superintendent.

27. Refuelling Procedure:
- All refuelling and other hazardous material use to only occur within appropriately sealed bunded area
- No refuelling to occur within minimum of 10m of any drainage inlet, open drain, or tree protection zone
- Drain seals to be in place prior to refuelling

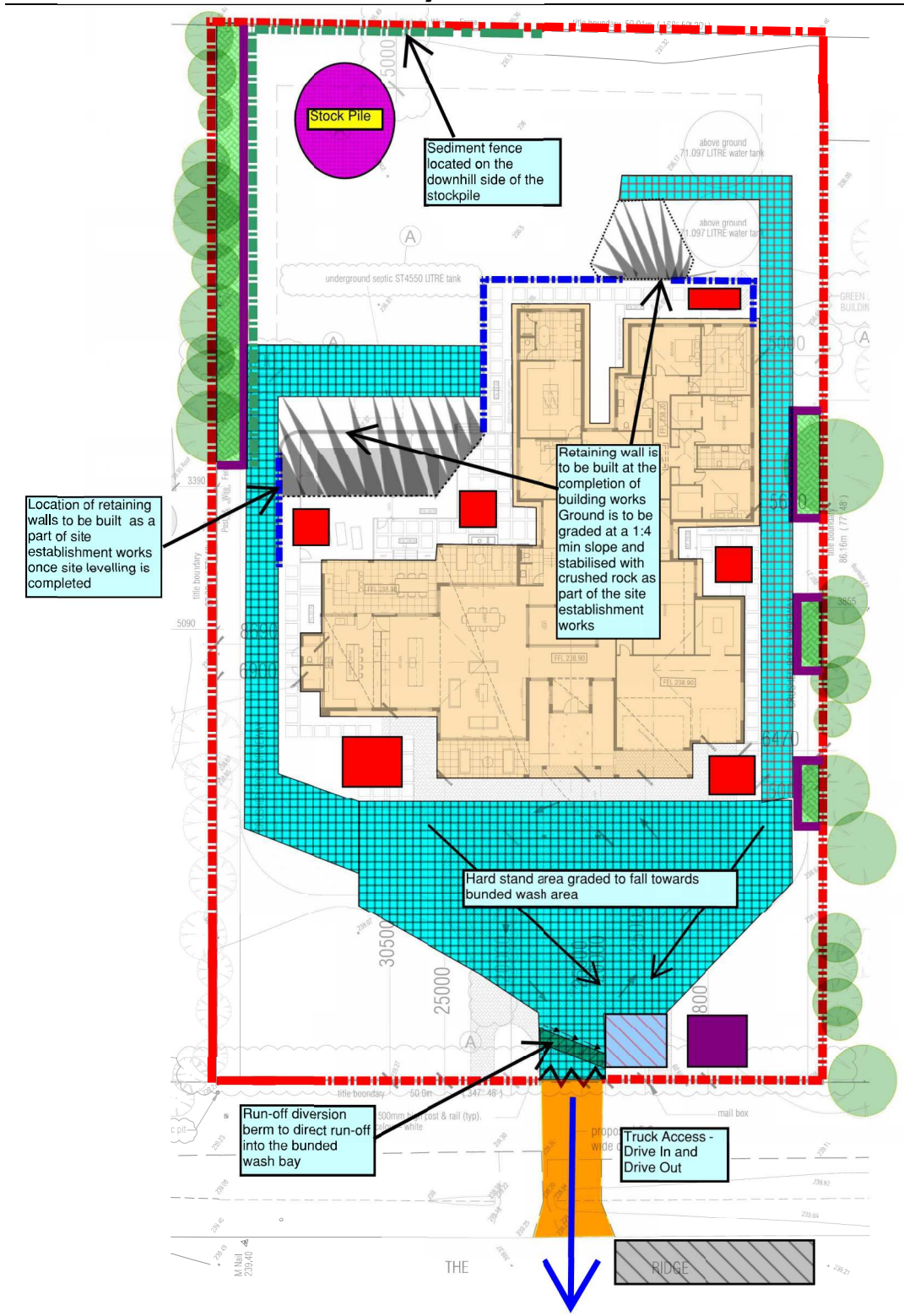
28. Other:
Nil

I have read this Environmental Management Plan and agree to undertake works and ensure sub-contractors undertake works in accordance with this plan.

Consultant _____ Contractor _____ Developer _____

CSEMP PLAN (NOT TO SCALE) - TYPES AND LOCATIONS OF ENVIRONMENTAL PROTECTION MEASURES

Project Name: New Dwelling at 14 The Ridge, Oakland Junction
Date and Revision: February 2025 v1



LEGEND

- 5.0m wide temporary crossover located where the new crossover is proposed to be built. 150mm compacted crushed rock set flush with nature strip and 200mm diameter concrete pipe laid in channel to facilitate vehicles access. Pipe is to be kept clear of debris at all times
- Stabilised crushed rock vehicular access for truck access and construction personal access. Hard stand area is graded to drain into bunded wash bay
- Bunded wash bay
- Skip bin 2.4x1.5x1.5 high
- Construction Work Zone set up along The Ridge site frontage for concrete truck/pump set up & "as needed" basis
- Waste recycling bin
- Covered waste bins
- Material set down area
- TPZ to be established around existing street trees with temporary protective fencing 1.8m high
- Temporary fencing with shade cloth & 2 access gates
- Retaining Wall
- Sediment fence along temporary site fence
- Access gate

SITE LAYOUT PLAN

Other Site-Specific Issues

SIGNIFICANT FLORA/ FAUNA — **RISK: SIGNIFICANT**

Requirement: All significant flora and fauna on and adjacent to the site must be protected

29. Yes - Details:
- The appointed builder must ensure that tree protection zones are set up around existing trees nominated on the Planning Permit for protection.
- Prior to any machinery or materials being brought on site and before any works commence, temporary protective fencing to a minimum height of 1.8m must be erected along the perimeter of the TPZ for adjoining neighbour trees that are to be protected
- Once erected protective fencing must not be removed or altered without approval from the Council's arborist. Signs identifying the TPZ must be placed around the protective fencing in accordance with AS 4687
- In the event that tree roots are encountered they need to be cut cleanly with sharp secateurs or a pruning saw to reduce the chance of dieback and decay developing.
- Surplus construction materials (e.g. soil, cement, base rock etc.) are not to be stored or allowed to remain inside the trees' TPZ.

ARCHAEOLOGICAL/ HERITAGE — **RISK: LOW**

Requirement: Places, sites and objects of archaeological or heritage significance must be protected

30. Yes/No. Details:
N/A

RISK ASSESSMENT CHECKLIST

NOISE

Issues:
- **Nature of Noise Generating Works:**
  - Machinery
  - Plant and equipment
  - Construction and delivery vehicles
- **Potential Noise Receptors:**
  - Pedestrians
  - Neighbouring dwellings
- **Proximity of Works to Noise Receptors:**
  Adjacent to residential dwellings

Likelihood **Certain**
Consequence **Minor**
Overall Risk **Low**

DUST

Issues:
- **Dust Sources:**
  - Uncovered bare ground
  - Earthworks and any on site activity that generate dust
- **Potential Dust Receptors:**
  - Site personnel
  - Pedestrians
  - Neighbouring dwellings
- **Proximity of Works to Dust Receptors:**
  - Adjacent residential dwellings
- **Extent of exposed earth and duration of time exposed:**
  - Bare soil and gravel shall be immediately covered when not in use
- **WIND CONDITIONS:**
  - Moderate

Likelihood **Likely**
Consequence **Minor**
Overall Risk **Medium**

EROSION AND SEDIMENT

Issues:
- **Erosion and Sediment Sources:**
  - Wind and rain
- **Potential Erosion and Sediment Receptors:**
  - Any stormwater pits adjoining the site along The Ridge road surface
  - The ground surface of neighbouring dwellings
- **Proximity of Works to Erosion and Sediment Receptors:**
  - 1 to 30 metres
- **Extent of Exposed Earth and Duration of Time Exposed:**
  - Bare soil or gravel will be immediately covered when not in use
- **Soil Type and Erosivity:**
  - Bare ground surfaces and patchy vegetation
- **Slope:**
  - Approximately 3.8m from east to west
- **Site Drainage Regime:**
  - Uncovered site surfaces with be exposed to strong winds, hard rains, and flowing water until covered with vegetation or paving. Until then, a temporary catch drain will be dug along the boundary at the low point of the site to mitigate sediment flow outside the perimeter of the site
- **Rainfall:**
  - Peak rainfall from May-August
- **Vehicle Movements On and Off Site:**
  - Installing a temporary crossover located where the new crossover is proposed to be built

Likelihood **Unlikely**
Consequence **Moderate**
Overall Risk **Medium**

WASTE

Issues:
- **Nature of Waste to be Generated:**
  - Hard construction waste (timber, steel, plastic, brick)
  - Packaging
  - Food waste
- **Presence of Waste On Site Prior to Work Commencement:**
  - None
- **Quantity of Waste Anticipated:**
  - Standard size and pre-fabricated materials will be used wherever possible to minimise waste generated during construction. This will reduce the amount of off-cuts and wastage left on site. Joinery units, etc. will be manufactured in joinery shops off site where recycling and re-use of materials is more achieved.
- **Potential Waste Receptors:**
  - Surrounding properties
- **Proximity to Potential Waste Receptors:**
  - 1 to 20 metres

Likelihood **Likely**
Consequence **Minor**
Overall Risk **Medium**

Chemicals

Issues:
- **Types of Chemicals and Fuels Used and/or Stored On Site:**
  - Adhesive, sealant, cleaning agent, diesel and petrol used by machinery and vehicles
- **Quantities of Chemicals and Fuels Used and/or Stored On Site:**
  - None
- **Potential Chemical Receptors:**
  - Site personnel
  - Site soil
  - Stormwater drainage system
  - Surrounding properties
- **Proximity to Potential Chemical Receptors:**
  - 1 to 20 metres

Likelihood **Unlikely**
Consequence **Moderate**
Overall Risk **Low**

SIGNIFICANT FLORA/ FAUNA

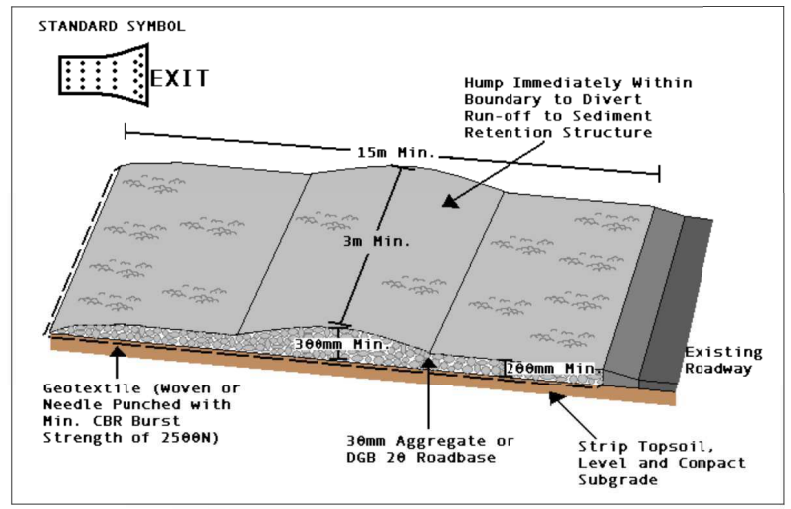
Issues:
- **Types of Flora/ Fauna:**
  - Existing adjoining neighbouring trees located at the northern and southern ends of the site are to be protected
  - Nature strip is to reinstated at completion of the building works
- **Vulnerability of Flora/Fauna:**
  - Trees nominated for retention are to be protected from damage to their roots from excavation work and construction activities
- **Proximity of Flora/Fauna to Works:**
  - Surrounding neighbouring trees and trees are to be protected by tree protection fencing
- **Work Activities Which May Threaten Flora/ Fauna:**
  - Excavation works
  - Vehicular and heavy machine works
  - Delivery of building materials
  - Refuelling of machines within the trees' protection zones
- **Potential Impacts on Flora/ Fauna:**
  - Soil compaction by heavy equipment and foot traffic reduces the supply of oxygen to the root system
  - Mechanical damage to the trunk of a tree caused by construction equipment can strip off bark and damage vascular tissue, reducing nutrient and water movement in the tree. Open wounds created by these injuries can serve as entryways for insects and decay-causing fungi
  - Severe construction damage can cause affected trees to decline and die

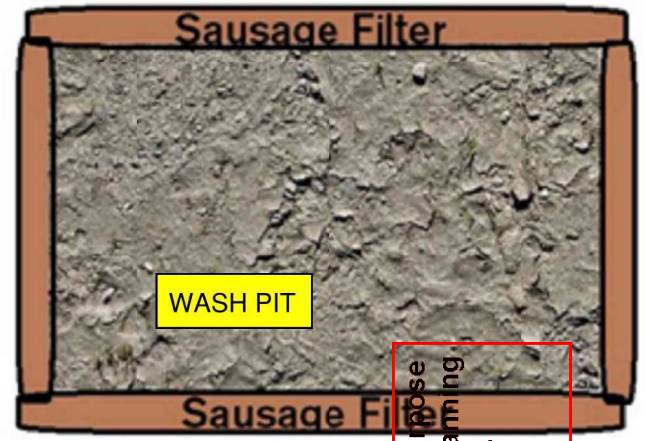
Likelihood **Likely**
Consequence **Moderate**
Overall Risk **Medium**

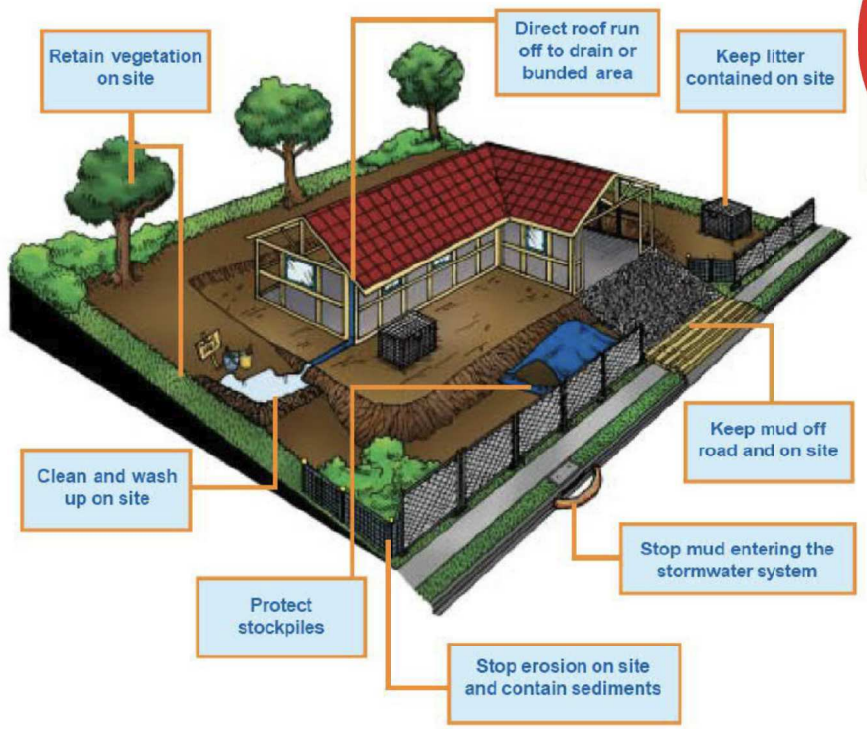
RISK ASSESSMENT AND DESIGNS OF ENVIRONMENTAL PROTECTION MEASURES
CSEMP PLAN (NOT TO SCALE) - TYPES AND LOCATIONS OF ENVIRONMENTAL PROTECTION MEASURES

Project Name: New Dwelling at 14 The Ridge, Oakland Junction
Date and Revision: February 2015 v1

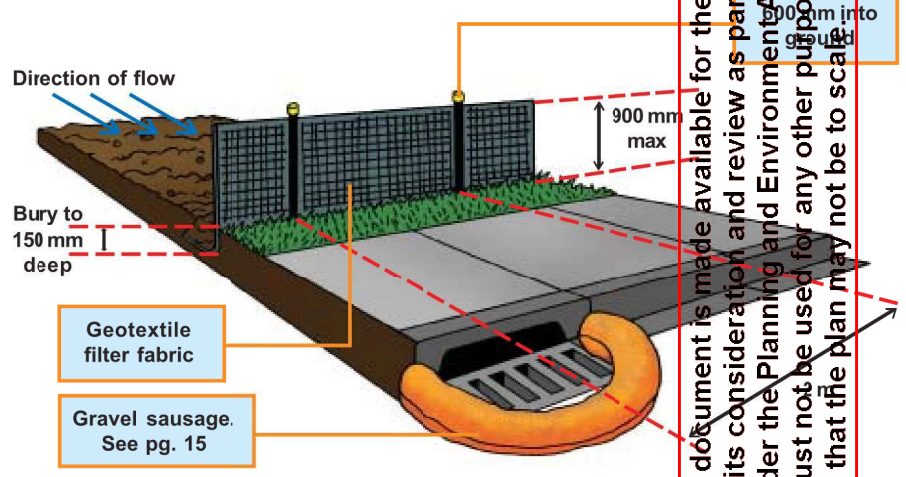
Environmental protection measures shall be constructed in accordance with the following designs.







Sediment control fences stop sediment from being washed off site. The fence allows muddy water to pond behind it and for sediment to settle as the water slowly filters through. Geotextile fabrics are required. Shade cloth is NOT suitable. Regular maintenance is required. Remove excessive silt deposits after storms.



TO BUILD A SEDIMENT CONTROL FENCE

I have read this Environmental Management Plan and agree to undertake works and ensure sub-contractors undertake works in accordance with this plan.

Consultant _____ Contractor _____ Developer _____

[redacted]